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ADDRESSES.

THE ANTIQUITY OF SYPHILIS, AND MOSES AS A HEALTH OFFICER.

CHAIRMAN'S ADDRESS.

Read before the Section on Surgery and Anatomy at the Forty-fourth Annual Meeting of the American Medical Association.

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While duly grateful for the high honor which the Section on Surgery and Anatomy has generously conferred upon me by this appointment to preside over its annual proceedings, I am also deeply sensible of the growing difficulty, with each succeeding year, of producing for so vigilant and experienced an audience as is here assembled, a theme for an official address that shall not be trite, or to make a contribution of professional knowledge that you do not already possess from more enlightened and impressive sources.

It would be a pleasing exercise to you and me, but I should thereby impart to you nothing new, were I to congratulate you upon the wonderful advances made in medical science during the expiring half of the nineteenth century, of which anæsthesia, and more recently, antisepsis and the germ theory of the causation, cure and prevention of disease, occupy the front rank. To the discoverer of litholapaxy, an American, the surgery of stone probably owes more than to any other means in this or any other age. Either one of these revelations of science would alone suffice to make a great epoch in the progress of the healing art. The genius of Pasteur, who by his now historical experiments, settled many of the long disputes regarding the phenomena of fermentation, and whose English coadjutor, Joseph Lister, devised practical methods whereby the disease-causing and death-dealing microbes might by careful disinfection be effectually excluded from wounds, have rendered feasible and almost innocuous many dangerous and complicated operations, notably those involving the viscera of the abdominal cavity, as well as the brain and spinal cord, which within the memory of surgeons still living were reprehended as utterly unjustifiable and inadmissible. But this appears to be only the beginning of the immense work wrought by bacteriology. Pasteur has made this prediction strikingly evident through his successful preventive and curative inoculations with the attenuated virus of the *charbon* disease, and of hydrophobia, whereby were set on foot in all parts of the civilized world most significant and suggestive experiments with the attenuated virus of other diseases. The microbes of a whole series of infectious and contagious maladies, such as tuberculosis, typhoid fever, diphtheria, and syphilis, have been identified and isolated, although the cure of most or all of the diseases last cited, has not thus far been greatly or at all advanced, through the medium of these alleged discoveries. The immense advantages which we are confidently encouraged to expect from the modern assistance rendered by chemistry and the microscope to the sciences of hygiene and therapeutics are not, in all probability, a wholly Utopian dream of those enthusiasts who predict that dawn of the day, when all virulent, contagious and infectious diseases shall be effaced as opprobia of our art.

A class of medical writers now somewhat in vogue, affect to belittle the conquests won by our profession in the past, and, captivated by the glamour with which the exceptional discoveries of the present age have invested our probably more glorious future, make scant and ungrateful recognition of the conscientious and praiseworthy work done by the pioneers of our art in the early times. Such writers taunt our predecessors with being too little receptive of new ideas, too rigid in their resistance to innovation and reform, and too slow in their relinquishment of what have since been shown to be erroneous beliefs. They go so far as to assert that medicine has been moving on a wrong track, and that the methods of treatment pursued up to the opening millennium of these writers, instead of being helpful, have been a positive hindrance to cure. They formulated their views in the monstrous dictum that the sum total of all attempted therapeutic assistance in the past has been injurious, and that the medical practice of our fathers did more harm than good.

With such radical opinions it is needless to state that I do not sympathize. But let me not be misunderstood. While I would not hesitate to practice bleeding in any manifestly appropriate exigency, I would not of course retrograde an inch backward toward the extinct Sangrado practice of indiscriminate blood letting; and I would, were it possible, gladly expunge from medical history the accounts of that period when water was withheld from all patients suffering from a fever, and when calomel and purging, leeching, cupping and bleeding are reputed to have been the means selected for the cure of three-fourths of the ailments of humanity. There may have been too much dogmatism and perverseness of opinion displayed by our professional forefathers, but that there was also an absence of much genuine science, was certainly no fault of theirs. The danger that we run in the wholesale upbraiding of the therapeutic shortcomings of our ancestors, is that we shall not only sacrifice that filial gratitude and

respect which we owe to our priceless professional heritage, with all its manifold imperfections, but that we shall also hastily reject with the worthless some of those really invaluable drugs of the materia medica which, although temporarily displaced by their more modern rivals, will probably continue to vindicate their substantial therapeutic worth through the vacillations of all time. To illustrate my last assertion, I need but instance one single agent, that of mercury in the treatment of syphilitic disease. It has descended to the present generation through the mists of antiquity, it has been handicapped with the absurdest pretensions and abuses of its virtues by the most arrant quacks, it has been occasionally reprobated, when in the unskillful hands of even orthodox physicians, as productive of more harm than good; but despite all its perturbations of history, and making all the deductions for the odium into which it has at times deservedly fallen by reason of its senseless and indiscriminate employment, it still remains, and for aught we know will continue to remain, an absolutely indispensable weapon for our successful warfare against syphilis down to the last recorded syllable in the annals of venereal diseases.

In the medical literature of the past there is likewise not a little that survives to excite our respect and admiration, and while that little may for the most part be unreliable now for our unrestricted guidance, it at least helps us, as the still visible but fast receding landmarks serve the mariner, to take our correct bearings, and to navigate with increased safety amid the rocks and reefs and along the siren shores of our modern age of constant revolution and change.

Even from the fragmentary remains of writings on medical topics that have descended to us from the remotest antiquity, there sometimes darts through the clouds of ignorance, error and superstition which envelop that period, a ray of light that arrests the attention and excites the surprise of the modern beholder. Of this phenomenon no more striking and pertinent example can perhaps be adduced than the sanitary measures instituted by Moses for the government of the early Hebrews.

If I were to offer an excuse for claiming your attention for awhile to-day to the great Hebrew seer in his capacity of sanitary law-giver and health officer, it is, first, that this subject has always been one of much ideal interest to me; second, that a book entitled "Syphilis in Ancient and Prehistoric Times," written by Dr. F. Buret of Paris, and translated by Dr. Ohmann-Dumesnil of St. Louis, has recently appeared, which casts additional and curious light upon the existence and recognition of this disease among the Hebrews, and upon the hygienic measures prescribed by their leader for its suppression and exclusion; and third, because Dr. Buret has supplemented to a remarkable extent our previous scanty knowledge of the extreme antiquity of this scourge.

While it appears probable that syphilis was not generally recognized as a morbid entity by the medical profession until the end of the fifteenth century, at and after the siege of Naples by Charles VIII, when it behaved with unwonted virulence, attacking all classes of society and killing a large number of its victims, yet its primeval origin, which will perhaps remain forever shrouded in impenetrable darkness, was certainly not in America, and is now traced with much clearness and logic by Dr. Buret to a period anterior to the year 1921 B. C., when, according to the biblical narrative, a Hebrew of the name of Abram, who dwelt between Bethel and Ai, was constrained to leave his country by the famine, and went down into Egypt with his beautiful wife and ostensible sister, Sarai. Dr. Buret has introduced considerable evidence in support of this view, and by his positive language has given token of the strong conviction that is behind his words.

Syria and Chaldea, the latter having for its capital Babylon, were noted in ancient times as the center of all debaucheries. On the Assyria-Babylonian cuneiform inscription tablets in the British Museum, derived from the royal library of Sardanapalus, it is related that Istar, the goddess of sinful love, proposed to Nimrod to become his wife, a proposition which the latter very ungallantly refused. Istar demanded satisfaction for this insult from her father Anu. As a result the sacred bull was sent against Nimrod and his friend, Eabani. Eabani seized the animal by one horn and the root of its tail, while Nimrod fatally bored its heart with a weapon. Istar uttered an awful curse, to which Eabani replied by tearing out the penis of the bull and throwing it full in her face. A new curse was hurled by the goddess, and Eabani died after a short illness. Nimrod was likewise attacked with a painful disease. He wandered about until he reached the infernal regions, where he was given a "magic food" for his complaint. This remedy apparently had no effect, for Nimrod continued to complain that the shadow of death lay on his genitals. The god of the infernal regions then took him to the ferryman, and bade him take the hero to the fountain of life, saying: "The man whom thou hast taken has his body covered with pustules; scales have altered the fairness of his body. Take him to the cleansing place, where he can wash his pustules clean, and take off his skins; the sea will carry them off; his body will appear well. The coverings of his head will be renewed, and also the covering of his shameful parts; by the time he returns to his country, there will be no folds; all will be new." Then follows after an interruption in the text: "He renewed his head coverings; the sheath which clothed his shameful parts was new when he reached his native land." I think we must concede to Dr. Buret that the foregoing is a pretty convincing picture of syphilitic disease. This author adds that Eabani also evidently had lues, for Nimrod prayed that he might not die like his companions; and Eabani moreover had spent six days and seven nights dallying with his beloved Uchat.

To return to the narrative concerning Abram and Sarai, Dr. Buret informs us, in accordance with scriptural account, that as the former conducted his fascinating wife into Egypt, he made her pass herself off as his sister, "fearing," as he said, "that the Egyptians might do him an evil turn by taking her from him." The beauty of Sarai gained him admission to the court of Pharaoh. The latter simply appropriated the beautiful Jewess to himself, and heaped her supposed brother with goods and presents.

The Bible states that God "visited Pharaoh and his house with great plagues, on account of Sarai, the wife of Abram," which is interpreted by Dr. Buret to mean that Pharaoh contracted from Sarai a venereal

disease, which he transmitted to his other wives, or to those of his officers, who in turn gave it to others; in short, the whole court became infected.

Pharaoh, after having reproached Abram for not informing him that she was his wife, returned his goods to him, together with his dangerous mate, and dismissed them both. Later on, at Geurar, this husband made the same statements to Abimelech, the king of that country. At that time he called himself Abraham and his wife Sarah. After the same story of the sister, and the same exploits between her and the King, the latter hastened to return Sarah to her husband, and loaded both with presents. Abimelech had, none the less, contracted lues, which he communicated to the Queen and to his concubines. But upon the prayer of Abraham, according to Genesis, chapter xx, the Lord cured Abimelech, his wife and servants, and these could bear children. The Bible informs us that Sarah was for a long time sterile, and that all the women who were similarly infected were sterile. "For the Lord closed the womb of all the women of the house of Abimelech on account of Sarah, the wife of Abraham." Dr. Harmonic, of Paris, who published in 1887, a monograph on "Venereal Diseases among the Hebrews," comments as follows: "It is not irrational to suppose that syphilis was concerned in this sterility. It disappeared with age in Sarah, who became pregnant late, which is good proof that her sterility was not due to organic cause; and outside of syphilis, we cannot see any other disease of genital origin which would correspond with the foregoing facts."

Although not pursuing the chronological order of events, I will now let you hear how Dr. Buret disposes of the case of King David. The latter, the Bible relates, was enjoying the cool of the evening upon the terrace of his palace, when he espied a woman of rare beauty who was washing herself in a brook. He made inquiries and learned that she was the wife of one of his officers, one Uriah; he had her brought to him, said very little to her and found her docile in every respect. The entertainment having terminated, the present victim of David's wiles, who was named Bath-Sheba, quietly returned home. It is not known whether she returned after to see the King, but it is probable; at all events, she became pregnant. Then David bethought him of getting rid of the husband, and found nothing better than to charge one of his generals, who was on a campaign, to place him in the most dangerous post, so that he might be killed—which happened, as a matter of fact,

Bath-Sheba put on mourning and David married her. She was delivered. Up to that time, nothing was more simple. But the two lovers had reckoned without the Lord, for the latter sent a prophet to David, to rail at him and warn him that he would be punished where he had sinned. According to Kings, chapter xii, the prophet Nathan brought to David the decision of Jehovah, formulated in these words: "For the Lord has spoken thus: Behold, I will visit evil upon thee and upon thy house; the son who is born to thee will die." As a matter of fact, in spite of David praying to the Lord, fasting, lying on the ground, etc., the child fell ill, and "died at the end of seven days."

Dr. Buret maintains on biblical evidence which will presently follow, that David contracted syphilis from Uriah's wife, and that tertiary accidents rapidly declared themselves in this libidinous king; suggesting that he may not have troubled himself about the first two periods of his disease, or may have experienced them in a light form; for, nine or ten months later, at the least, inasmuch as Bath-Sheba had time to arrive at term, the symptoms of the tertiary stage manifested themselves by osteocopic pains, ulcerated gummata, syphilitic caries, etc.

Let us now listen to the lamentations of David in the Book of Psalms, who will himself describe with poetic metaphors, the symptoms of his disease:

"Pity me, O Lord, for I am ill; cure me, O Lord, for my bones are diseased; I am the opprobrium of men; all those who have seen me and mocked me." David would probably have been pitied, instead of being mocked, if the nature of his disease had not been known.

"There is nothing healthy in my flesh; my ulcers are putrid and corrupt on account of my folly." Here ulcerated gummata are described, and allusion is made to the shameful source of his malady. "The light of my eyes is no more with me." Dr. Buret in this sees a common accident of the transition period, iritis, or the sequelæ of this inflammation.

"Day and night thy hand weighs upon me." This was probably a nocturnal cephalagia. He did not even have sleep to forget his trouble. "My bones leave me no peace on account of my transgressions." Galligo, an Italian medical author, who has also contributed a large share to the literature of this subject, avers that "King David suffered chiefly from osteocopic pains, incident to syphilis."

"All my bones separate; I am an opprobrium; those who were near me now stand aloof; all those who have seen me abroad run away from me." He thus hints significantly at syphilitic caries, and for the second time he makes us understand that he had a contagious disease which nobody trusted.

Dr. Harmonie, before quoted, says: "The symptoms mentioned in the Psalms of David, although somewhat vague, have none the less a great diagnostic value, especially if they are grouped and placed in relation to one another. Here is a man who contracted from a woman he rendered pregnant a disease of genital origin, whose symptoms are marked, since they are those upon which the patient especially insists, consisting in terrible pains, coming on chiefly at night, and in alteration of the bones. The bones are the seat of acute suffering. They disintegrate and separate (by caries or necrosis). Purulent and chronic ulcer occur, and are probably related to the diseased bones. It must be through that the fragments of bone escape."

The patient loses his strength, and falls into a marked cachexia. His emaciation is extreme. His mouth (especially the tongue) is diseased. He is a disgusting object to everybody. The morbid symptoms at first localized, become more and more general ("there is nothing healthy in my flesh") and, what caps the climax, the eyes are implicated and the sight is obscured. Visceral symptoms appear at a given time, and this terrible general disease plunges the unfortunate David into a hypochondria and discouragement which it is easy to understand, in view of the chronicity of the lesions and of their resistance to the inadequate thereapeutics directed against them. Furthermore, the child borne by Bath-Sheba, who had transmitted her disease to David, died at the end of seven days, a fact which, when added to

the others, naturally leads us to make the diagnosis of syphilis.

This occurred about the year 1034 B. C., so that David, who according to Kings, chapter III, required a young virgin to warm him, in his old age, was probably in point both of personal age and of epoch of reign, one of the oldest *syphilitic* kings that ever lived.

There is nothing for me to add concerning David but to suggest that, if syphilis is a just punishment, which is a debatable question, it was never, nor could it have been, better applied than by being grafted on this lecherous old king, who deserved the epithet of venerable, only on account of his years and his sacred religious associations.

In the fifth book of the Proverbs of Solomon, are to be found a few impressive words of advice which go to show that cohabiting with the prostitutes of the time might be followed by painful and disastrous remembrances, capable of lasting for years, and of gravely compromising the general health. "We again show our preference," writes Dr. Buret, for the Latin version of the Hebrew text edition of 1715, in the National Library at Paris, in order that the reader may see for himself that our interpretation has nothing in it of a fantastical nature: "For the lips of the harlot distill honey; but the consequences are as bitter as wormwood, and as sharp as a double edged sword; do not draw near the gate of her house, lest thou shouldst give up thy honor to strangers, and the remainder of thy life to something cruel; and that thou mayst not groan later, when thy flesh and thy body will have been destroyed through thy fault." Despite Solomon's wise and impressive counsels to beware of the harlot, his graphic lessons have profited but little since his death.

In Ecclesiastes, Chapter XIX, a collection of maxims, also attributed to Solomon, would seem to refer to the tertiary period of syphilis: "He who has relation with prostitutes will become unclean, for everything gangrene and worms will seize upon him, and he will serve as a terrifying example to others."

The following verse of Leviticus, Chapter XIII, proves that there existed in scriptural times ulcers whose scars were white, and others that preserved a brownish color as in modern lues: "If an ulcer has arisen in the skin or within the flesh, and it has healed, there appears at the place where it existed, a scar, white or somewhat reddish."

From the information furnished by Rosenbaum, in his "History of Syphilis in Antiquity," the name "Baal Peor" signified among the Hebrews *the god Penis*, the Priapus of the Romans. His temple was built on the Mount Peor, and young girls repaired to it to prostitute themselves. This worship was analogous to that of Phallus, in the rest of Asia; and we may still see to-day in China, a phallus on a stone over the door of licentious houses, as it was in Pompeii.

Moses makes note in Numbers, chapter XXV, of the scourge which the Jews brought upon themselves by the worship of Baal, in the following words: "Israel tarried at Sittim and inhabited there; it fell into fornication with the daughters of Moab." In more symbolic terms, the Hebrews worshiped the gods of the daughters of the Moabites, and devoted themselves to the worship of Baal Peor.

Therefore the wrath of Jehovah made itself felt, and manifested itself in an epidemic disease, which spread like a train of powder and decimated the Israelites. Moses taking active alarm, caused all those that had bowed to Baal to be killed: that is to say, all those who had had relations with the Moabite women, for they were all infected, or likely to be. "Twenty-four thousand men were thus killed by the steel," says the text, a prophylaxis which would in our day be viewed as extremely radical. Jehovah is made to say: "In order to appease my anger, let each chief of the tribes sacrifice those of his tribe who have gone over to Baal Peor." Later on, the Bible adds this remark: "Thus the plague was averted, after having cost the lives of 24,000 men." Many commentators of the Hebrew text have departed from this to explain that the 24,000 men died of the disease, but this is contradicted by the text itself. Besides, Philon and Josephus, Jewish historians, expressly state that this massacre was ordered by Moses.

At all events, this terrible execution did not suffice to destroy the root of the evil; for Joshua, seventeen years later, while reproaching the Hebrews for their debauchery, plainly says, (Joshua, chapter XXII): "Is it not enough for you to have committed the sin of following the worship of Baal Peor, a sin whose sign exists unto this day?" Nearly seven centuries later, in 810 B. C., the prophet Hosea, again had occasion to rail against those who sacrificed to the altars of Baal Peor, and he groaned over the results of this worship in the following terms: "They have been initiated in the mysteries of Baal Peor; and they have become terrible like those things which they worshiped."

Moses superadded to his trenchant domestic precautions against the scourge of Baal Peor, a declaration of war against the Midianites, because the women of that people had drawn the sons of Israel to the worship of Baal Peor; and as a matter of fact, the latter was the principal focus of the disease. The Hebrews marched against Prince Midian, defeated him, killed all the men, and, after the accessory work of pillaging, brought back with the flocks the women and children. According to Numbers, chapter XXI, Moses became angry at the generals because they had spared the women; and indeed, it was scarcely worth while to have executed their own men, either diseased, or suspected of being so, and then to introduce into the Hebrew camp strange women who contained the virus. Moses had but one course to pursue, viz., to kill them also. It was cruel, but intensely logical, and the great legislator reasoned about it as follows:

"Are these not the women who have seduced the sons of Israel at the instigation of Balaam, and who have made you deny the Lord, your God, to make you sacrifice to Peor, from whom has come the scourge which has stricken our people?" The conclusion of this apostrophe is easily anticipated: "Therefore strangle the women who have known men carnally, but allow young virgins to live."

For the attentive reader of Mosaic history, it is needless to add that this command was duly executed.

It is difficult to believe that the following isolated verses of the Bible did not deal with syphilis, and we reproduce them with a word of comment:

"The Lord will render bald the vertex of the heads,

the Lord will cause their hair to fall; instead of flowing hair it will be baldness." Is not alopecia syphilitica here distinctly pointed out as one of the inherent diseases of prostitution?

Again: "The appearance of their face speaks for them; they publish their sin, nor do they dissimulate."

"The Lord will cover thee with bad ulcers, from the soles of the feet to the head, upon the knees, on the legs, and thou wilst not get well." We here see described a generalized syphilitic eruption, with pustules and ulcerations.

"Thy sores will increase by the will of God, as also those thou hast given to thy progeny; then there will be large and presevering sores, the worst and most lasting lesions." Heredity is here clearly indicated.

The Hebrews were as much exposed as other people of Asia to contract venereal diseases, inasmuch as they had the depraved habits of all the Asiatics. Without mentioning Sodom and Gomorrah, does not Moses forbid, in Leviticus, incest, bestiality, perverted sexual relations, and even legal prostitution, which is the best proof that these vices existed? In spite of the most severe punishments, the Hebrews gave themselves up to these shameless excesses; and as prostitution was forbidden in their camp, they visited strangers, particularly the Midianites and the daughters of Moab. These latter initiated them into the worship of Baal Peor, or Belpheqor, a sort of Priapus, whose temples were nothing but places of debauchery. These orgies in common were eminently favorable to the communication of syphilis; and, as a matter of fact, it was rapidly propagated, and known as the plague of Baal Peor, the epidemic which has just engaged our attention.

That this plague of Baal Peor was actual syphilis appears to be an almost irresistible conclusion. It was of venereal origin, and it could have been neither gonorrhœa nor balano-posthetis, nor genital herpes, nor even chancroid, although these lesions, with the exception of the last, have been likewise established as being rife at that period among the Jews. These latter ailments alone would certainly not have alarmed Moses to the pitch of adopting such extraordinary and radical measures, even if they had multiplied, as a result of excessive coitus and uncleanness. The disease of Baal Peor was something more intense, more violent, and more dangerous to the public health. Flavius Josephus says, that it was highly contagious, and was frequently transmitted to members of the same family. It was plainly a disease that constituted a grave social danger, which Moses endeavored to avoid by all possible means. It was not leprosy, for this learned and experienced legislator was too keen an observer of phenomena to make a gross error of diagnosis between diseases which already existed among his people, and the new epidemic. To read even the fragmentary detached accounts of its clinical symptoms furnished by the Bible, one might almost fancy them a summary of one of these monographs of the fifteenth century treating of the *morbus gallicus*.

The present speaker here records his belief that the epidemic of Baal Peor was frankly and purely syphilis. Not syphilis as it first stole upon this globe, to curse its human occupants perhaps forever, but a revival of it akin to that outbreak which in mediæval times lashed humanity with such fury and virulence at the siege of Naples. Nor, in all probability, was it syphilis as it exists to-day. All the recognizable features of the latter were no doubt there, but, fortunately for our patients, there was more of the pristine and unmitigated sting in the ancient form.

Buret also refers to the work of Captain Dabry, who translated the records of the Chinese Empire. Dabry found that syphilis was very common among the Chinese about 2700 years B. C. Their records then speak of it as an old disease, and one for which mercury was in general use. This Chinese record antedates the appearance of the disease in Egypt in the family of Pharaoh. We find also from this book that wherever prostitution existed syphilis was its companion. The former being as old as the human race, it seems very evident that the latter is also. But we find older records than the Mosaic or the Chinese. Its history has been written and may to-day be traced in monuments more lasting than written records. Wherever human remains have been found, even there the record may be traced. We know that to-day hereditary syphilis manifests itself in unmistakable evidences on the bones, especially in the form of exostoses about the superciliary arches, the frontal and parietal bones. These evidences, wherever found to-day, are pathognomonic of syphilis. Then if we find remains of the buried races of the past bearing these syphilitic exostoses, we may unhesitatingly affirm that the subject was the victim of hereditary syphilis. Buret has collected all the evidences bearing on this point, and we find syphilitic skulls and tibiæ have been excavated from the caves and dolmens of France, from the tombs of the Incas and the mounds of the mound builders of the United States, which bear unmistakable evidences of hereditary syphilis in the form of syphilitic nodes. Those who are in a position to know the value of these discoveries estimate their age at 60,000 years.

At the outset of this address, which has already I fear transcended in length your most reasonable and indulgent bounds, I incautiously purposed to say much of Moses in his capacity as a health officer and hygienist to the Jews. But this intention must now be abandoned, or postponed, which is perhaps a greater disappointment to me than to you. Suffice it for the present to say that of all the laws and precepts invented and instituted by Moses, the most brilliant were his rules of hygiene, applied to the enforcement of scrupulous cleanliness, and thereby to the limitation and extinction of disease.

If I may be permitted, after my very meager mention of the career of Moses as a hygienist and protector of his people against the ravages of disease, to estimate him for a moment in his guise as a man, as best befits a medical essay, and not in his character as a God-inspired liberator and ruler, I will add that the history of his life, derived from non-biblical, as well as biblical sources, irresistibly forces the reader's conviction of his grandly towering personality. As a military leader, he successfully braved, with his untrained warriors, a great King and his disciplined armies, and his rare administrative qualities enabled him later to mold the brutalized hordes of Egyptian slaves into a great nation. His calm self possession, impartiality, patience, perseverance, united with keen energy, promptness of action, and unfailing courage, constituted his extraordinary power over the hun-

dreds of thousands who wished to know no law but their freshly acquired liberty. His self-prepared code of laws for their government, surpassed, for his time, these of a later period by Justinian and Napoleon, which were the work of jurists. The Rationalist school explained his alleged miracles as an advantage cleverly taken of his superior knowledge of natural phenomena. Voltaire, Tom Payne and Robert Ingersoll, trenchantly attacked him as the gigantic tramp of ancient times. There seems, however, but one conclusion. History discloses few, if any, men of his transcendent grandeur of genius, and despite every discount that the most hostile criticism has yet proposed, Moses remains, and will probably continue to remain, the most wonderful human product of all time.

ORIGINAL ARTICLES.

POINTS IN THE ETIOLOGY AND CLINICAL HISTORY OF ERYSIPELAS.

Read in the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

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In discussing the predisposing causes of erysipelas, authors are greatly at variance as to the influence of age, sex, seasonal effect, etc., among other well recognized factors. It must be confessed, however, that no statistical inquiries have heretofore been instituted to show the exact effect exerted upon the disease by these supposed etiological elements.

In a recent paper on "Seasonal Influence in Erysipelas, with Statistics," the writer has shown, by careful analysis of 2,010 cases collected from different sources, the relationship existing between the various seasons of the year and this affection; and he ventures to hope that he may be pardoned for calling attention briefly to some of the tabulated data contained in his former paper. Table (1) demonstrated clearly that the cases increase month by month in slightly varying ratio, from August to April, which latter month gives the greater number; and that there is a rapid decrease in the percentage of cases from April to August, the latter giving the smallest number. Again: "one-half of all the cases occurred during the months of February, March, April and May, and 15.9 per cent. during the month of April alone. It would appear that the winter and spring months, though more particularly the latter, influence the susceptibility to this disease." To account for this augmentation of cases during the winter and spring seasons no satisfactory explanation has been found. That it is not due to the increase in sickness in general which, as pointed out by M. J. Lewis, occurs in the spring season, may be readily shown. Erysipelas gives the greatest percentage of cases in April, whilst on the other hand, the greatest percentage in the aggregate of human illness, when computed month by month, occurs in March.

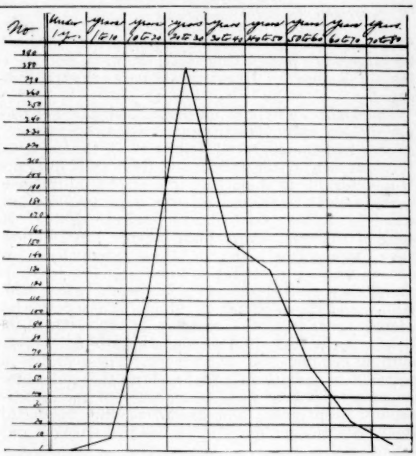
Researches were also instituted with a view to showing any relationship that might exist between the mean relative humidity, the mean barometer, and the appearance of cases of erysipelas.

Suffice it to re-state here a few of the deductions which may be found in my former paper relative to the rôle played by certain leading climate elements in the causation of this affection.

1. That a low barometer and mean relative humidity invariably correspond with the annual period in which the greatest number of cases occur, and the highest percentage of relative humidity with the months affording the fewest cases.

2. Among the meteorological factors, temperature has the least, and relative humidity the most, intimate connection with the disease.

TABLE I.—AGES.



Total for period of each decade.	1	9	112	280	155	133	61	23	7

Representing 781 cases occurring from 1852 to 1892, inclusive.

Erysipelas is not to the same extent as chorea and rheumatism related to the seasonal variations in the totality of human illness.[1]

That the foregoing conclusions are based upon adequate data will be seen by a glance at the accompanying table. It however will also be observed that, for the months of September, October, November and December, the tracings do not maintain the same resemblance to one another as during the months from January to September, hence the effects of the various meteorological factors alone are inadequate to account for the steady rise, in the percentage of cases, throughout the cold months and more especially the quite considerable April augmentation. The interesting fact, however, remains proven, even though not explicable, that the disease is to a considerable extent dependent upon seasonal influence.

PREDISPOSING INFLUENCE OF AGE.

The period of life at which persons are most liable to erysipelas has not, up to the present, been definitely determined, though there appears to be a pretty general impression among medical writers that it is most commonly met with in the young. Dr. J. A.

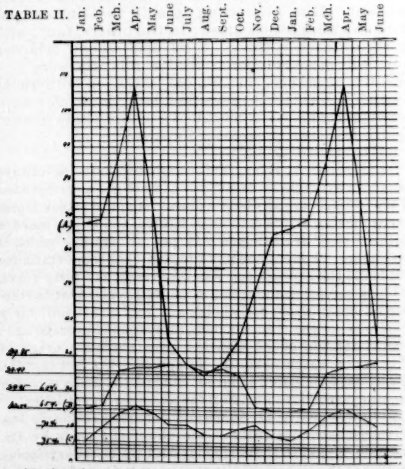
[1] For a more complete discussion of the points raised, the reader is referred to the original article—Proceedings of the American Climatological Association, for 1893.

Glaser (*Therapeutic Monatshefte*) reports 148 cases of erysipelas, in part from his private practice and in part from cases observed in the hospital. "These did not include any but his severe cases, and were scattered through fifteen or sixteen years. The patients varied in age from three-fourths of a year to seventy-five years. The largest part of them were between twenty and forty years old."

With a view to ascertaining with some approach to exactness the influence of age as a predisposing factor, I have obtained notes in 1,894 cases. Of these, 1,754 were acquired from the records of the various hospitals of Philadelphia and 143 from my private practice and the practice of others, who kindly furnished me with reports of their cases.[2]

In a small proportion of the cases only, the age of the patient was not given. The records of Blockley Hospital, Philadelphia, furnished 1,113 cases. It should be pointed out, relative to the latter statistics, that I can do nothing more at present than to give the average age of the patients. During the years from 1857 to 1870 inclusive, there were 234 cases whose average age was 45 years. In 879 cases which were admitted into Blockley Hospital during the years from 1870 to 1890 inclusive, the average age was 43 years. On the other hand, the average age of the cases derived from all other sources (781 in number) was 29 years. The average age of the 143 cases reported from private practice was 29.5 years. The explanation of this apparent great discrepancy in the ages is to be found in the fact that the average age of all patients admitted into Blockley Hospital is much greater than the average age of those admitted into other institutions or those met with in private practice. The patients cared for in the wards of Blockley Hospital come from the pauper element of the population in Philadelphia and elsewhere—an element composed in great part of middle-aged and old persons.

TABLE II.



[Explanation of Table.—*A*—1163 cases occurring from 1871 to 1890, inclusive. *B*—Mean barometer from 1871 to 1890, inclusive. *C*—Mean relative humidity from 1871 to 1890, inclusive.
The cases increase in increments of 10. Barometric pressure reckoned in inches. Mean relative humidity given in percentages.]

With this brief reference to the statistics obtained from Blockley I dismiss them, but desire to call attention to some interesting as well as practical points growing out of a further analysis of the 781 cases previously mentioned. In order to indicate the proportionate percentage of cases for the different periods of life the subjoined table has been carefully prepared.

Since this chart is quite simple and really self-explanatory, it will be unnecessary for me to do more than to call attention to a few facts, which are of sufficient importance to be emphasized. The tracing in the table represents the whole series of cases and increases in increments of ten. It will be observed that more than one-half of all cases occur before thirty years of age; that the period of greatest liability is from twenty to thirty years; that from thirty to fifty years the cases slowly decrease, and after fifty years quite rapidly. It should be noted especially that under ten years the disease is extremely, and between ten and twenty comparatively rare. The period of greatest frequency—from twenty to thirty years—furnishes 35.8 per cent. of the aggregate number of cases.

No attempt has been made to separate the idiopathic from the traumatic form of the complaint, and chiefly for the reason that in most instances the distinction was not noted in the records.

The Effect of Sex. The influence exerted by the sexes was also shown by the results of these investigations. The sex was noted in 1,767 cases. Of these, 1,219 were males and 548 females. It remains to be stated, however, in reference to the hospital statistics, that, in proportion to the whole number of cases of all complaints among the males as compared with those among the females, admitted into the institutions named, the preponderance of the former over the latter would not be so great as indicated by these figures. And yet, after making due allowance for all modifying conditions, the ratio would be as three to two in favor of the male sex. The same thing may be shown by considering separately the 143 cases gleaned from private practice, of which eighty-five were males and fifty-eight females. Of the 148 cases of erysipelas reported by Dr. J. A. Glaser (loc. cit.), fifty-one were women and ninety-seven men. That the disease is more frequent in the male than the female sex is thus definitely shown. This dictum may excite surprise in view of the fact that by most authors erysipelas is stated to be more common in women than in men.

The fact is rapidly becoming recognized by the profession that slight abrasions and fissures, either in the mucous membrane of the nose or in the skin of the face or the ear, as well as all forms of slight injuries, are liable to furnish a path of ingress to the specific poison. This point has also been corroborated by the results of our researches. In 643 cases which were examined with reference to this question, slight injuries and abrasions were noted in 113. Doubtless in many of these instances the examiner omitted to search for such lesions as we are considering. In most of the instances (here enumerated) the character of the changes was particularized as follows: slight contusion of forehead,

[2] I desire to express anew my grateful acknowledgment of the services kindly rendered, in the collection of these cases, by Drs. G. H. Crabtree, Wm. Osler, George Booth Miller, L. S. Bromley, Weiser and Litchfield and by numerous professional friends for cases from their private practice.

in six cases; small wounds of forehead, six cases; slight scalp wounds, seven; trifling lesions of the ear, four; slight wounds of skin of nose, six; syphilitic erosions of nasal bones, four; wounds of eyebrow, three; wounds of eyelid, three; slight injuries to leg, three; slight wounds of cheek, wounds of thumb, two each; vaccination, excoriation of elbow, toe rubbed by boot, corn cut, caries of tooth, small sty, excoriation of foot, dog bite, one each.

It is interesting to note that, out of a total of 301 histories examined for me, by Dr. M. Booth Miller, acute coryza preceded the attack in thirteen instances. Doubtless in these, slight lesions of the Schneiderian mucous membrane favored specific infection.

Testimony confirmatory of the well known fact that certain chronic diseases, such as chronic Bright's, phthisis etc., increase the susceptibility to the complaint, was also brought to light by these inquiries.

The chronic affections in the course of which erysipelas occurs most frequently are shown by the following analysis of 1,665 cases, viz: in the course of chronic leg ulcers, sixty-seven occurred; in chronic pulmonary tuberculosis and chronic nephritis, fifteen each; in rheumatism, fourteen; in organic heart disease, ten; in urethral stricture, six; in syphilis and synovitis, five each; in asthma, chronic pleurisy and chronic alcoholism, four each; in bone necrosis, malaria, locomotor ataxia, senile debility and puerperal state, three each; in typhoid fever and sciatica, two each. Instances in which single cases occurred secondary to other chronic affections were numerous, but need not be detailed here. According to these figures the proportion of examples in which erysipelas is secondary to chronic diseases is not formidable, the percentage being 7.8, if we include those diseases that furnish but a single case of erysipelas.

Individual predisposition to the complaint was shown in some instances, though not as frequently as some writers would have us believe. Of 450 instances previous attacks were noted in thirty-nine, or in 8.06 per cent. One patient had had seven previous attacks; another, four; several, one, two and three attacks respectively. Family predisposition was noted in four instances. One of these patients stated that he had had many previous attacks and that his father and two brothers were also very susceptible.

POINTS IN THE CLINICAL HISTORY.

As to the chief seat of the local manifestations exact figures cannot be given since, in numerous instances, no mention of the locality was made; and yet the data obtained on this head were full of interest. The notes of the cases examined gave the result here stated. The locality was ascertained in 712 cases; of which 517 or 72.6 per cent. were facial; 127 or 17.8 per cent. affected the leg and foot; seventeen cases or 2.3 per cent., the arm; eight cases or 1.1 per cent. the hand; while five cases or .7 per cent. implicated the scrotum. The cases in which the inflammation occupied portions of the body other than the head could not all be classified as idiopathic. For instance, as before stated, sixty-seven cases were secondary to leg ulcers. Here the ulcers served as a gate of entrance for the specific virus. After a careful elimination of cases in which there seemed to be any doubt, we have 586 as the aggregate number belonging to the idiopathic variety. Of these, 517 or 88.2 per cent. were facial; 50 or 8.5 per cent. occurred on the leg and foot; ten or 1.7 per cent. on the arm; five or .85 per cent. on the hand; and four or .68 per cent. on the scrotum.

It is seen that nearly all cases of idiopathic erysipelas attack the face—a fact previously well known. The next most favorite seat of this disease is the leg—a fact not heretofore demonstrated.

Course and Duration.—Both the clinical course and duration of erysipelas were found to be quite variable; and this was owing largely to the presence of complications (which are numerous), the previous condition of the patient, age, etc. I regret that the limits of the present article will not permit me to discuss the various complications that were noted as occurring in this complaint. The average duration of the affection was computed in 1,880 cases and found to be (including relapses) 25.13 days. At any period of life, according to these observations, the stay in a hospital, or the duration of a case in private practice, was lengthened almost indefinitely when the patient had been previously in an enfeebled condition on account of chronic disease, and when complications existed. The average course was found to be much less in uncomplicated cases occurring in persons under 40 years, which is the time of life corresponding with a preponderating proportion of cases, viz., about fourteen days.

These results point strongly to the important practical facts. that erysipelas in a typical form is a self-limited disease; that the length of the attack is greatly influenced by the age of the patient *per se*, its average duration in persons of 50 years or over being considerably longer than in younger subjects. Sex has no influence in this direction.

That relapses are rather common in this disease is a fact long since learned by the profession. Among 476 cases recorded, relapses occurred in 54, or 11.3 per cent. It is interesting to note that in one patient five relapses occurred; in two others, four; and in three patients, three. First and second relapses were still more common. Single relapses were frequently observed, in typical cases, in otherwise healthy subjects. On the other hand, multiple relapses occurred most frequently in persons whose general health had been previously impaired.

DR. HOBART A. HARE, Philadelphia—There is always danger in averages on cases; you can not get a correct idea of the average age at which a disease is apt to attack a person by looking over a column of figures, and if you make a mathematical average you may get an average which is misleading. A few years ago I looked over some statistics and found the average age was something like forty years, but by a careful examination of tables I found that the disease affected persons early in life and very late in life; forty years was not the most common, although the average age; seventy and ten added together gave me an average of forty, which was misleading. I appreciate the fact that Dr. Anders has eliminated as far as possible the dangers which are always present in making the averages in statistics.

My experience in St. Agnes and Jefferson Hospitals has convinced me of the truth of the statement made by Dr. Anders in regard to the frequency with which the erysipelas we are apt to call typical, depends upon lesions of the nasal or conjunctival membrane. I remember a few years ago in St. Agnes Hospital in convalescent cases of typhoid who had erysipelas, there were always marked complications of the

face and nose. The stuffing up of the nasal cavities with dried secretions had been present to a great extent. In the mucous membrane of the nose we have the means of entrance of the microörganisms, the bacilli which first come with the destruction of the mucous membrane, with the pus. Unlike many diseases which are dependent upon the streptococcus, introducing itself in low vitality which decreases normal resistance and gives opportunity for the streptococci to produce the characteristic lesion.

I have also been much interested in what Dr. Anders said in regard to the frequency with which the disease attacks males instead of females. Most tables will show that acute inflammatory disease does not affect the male more than the female. The reason is the male is so much more exposed to traumatism, injuries which will allow the entrance of the streptococcus, than the female, but if women had the same opportunities for receiving injuries we might find them suffering from the disease even more frequently than men.

DR. J. M. ANDERS, Philadelphia, in closing the discussion, said: One of the points he raised should be answered. He stated that in adding together all the cases year by year and dividing by the total number of cases and in that way obtaining the average age of persons affected would in a great many cases give a misleading result, especially where the disease was most frequent at either extreme of life. If Dr. Hare had followed me closely he would have known that I added the cases together and got the total number, and I also gave the period of greatest frequency and the time of life at which cases were the most numerous, in that way overcoming his objection to the manner of investigating the subject. All the other points were well taken.

THE DETERMINATION AND SIGNIFICANCE OF CARBOHYDRATES IN THE URINE.

Read before the Section on Practice of Medicine at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHARLES W. PURDY, M.D.
CHICAGO.

Carbohydrates are so called because they are compounds of carbon, hydrogen, and oxygen; the last two elements being present in the proportion in which they occur in water. The carbohydrates met with in the urine are chiefly glucose, levulose, lactose and inosite. They resemble one another in their chemical composition, in all containing six atoms of carbon or a multiple thereof. They also resemble one another in their chemical characteristics; being neutral in reaction, not prone to enter into combinations, and with the exception of inosite, they all possess a strong rotary power over polarized light.

The chief clinical interest with regard to the presence of carbo-hydrates in the urine at present belongs to grape sugar; some knowledge of the other carbohydrates met with in the urine is necessary for differential purposes in testing; as well in a few cases for their clinical significance, but since the latter are for the most part of comparatively minor importance, the greater part of this paper will be devoted to the consideration of glycosuria.

GLYCOSURIA.

Grape sugar in its pure form crystallizes in rhombic tablets; is soluble in its own weight of water, and gives a dextro-rotary power over polarized lights of + 57.60. Its solutions become brown when boiled with liquor potassæ, but with picric acid a deep mahogany red. In the presence of strongly alkaline solutions, it reduces cupric salts, precipitating red oxide of copper; it also reduces bismuth salts with resulting black precipitate. Faintly alkaline solutions of grape sugar colored blue by indigo, when boiled, exhibit a beautiful color, reaction beginning with violet and ending with yellow. Lastly, with sodium acetate solution it reduces phenyl-hydrazin hydrochlorate to phenyl-glucosazone, forming highly characteristic and beautiful golden yellow ascicular crystals.

Grape sugar exists in minute quantity in normal blood, varying chiefly with the functional activity of the liver. In some abnormal states of the system, the amount of sugar in the blood becomes markedly increased, reaching its maximum, about one-tenth of one per cent., in the more pronounced diabetic conditions.

It has long been a disputed question if sugar be present in normal urine as first affirmed by Brucke. The investigations of Segeen for some time seemed to negative such assumption; but quite recently this question has received emphatic confirmation through the researches of Wedenski. Taking advantage of Baumann's discovery, that benzoyl chloride forms insoluble compounds with carbohydrates, Wedenski succeeded in separating from the precipitate thus formed in normal urine a body which gave all the reactions of grape sugar; so that these investigations must be considered conclusive. Although therefore sugar exists in normal urine as above shown, the quantity is so exceedingly minute that it is unrecognizable by our ordinary methods of testing, and consequently its significance is physiological rather than clinical, and need not further detain us.

CLINICAL SIGNIFICANCE.

Glycosuria may appear as a temporary condition in the course of a number of diseases, as cholera, intermittent fever, scarlatina, gout, cerebro-spinal meningitis, diseases of the lungs, liver and brain; especially if involving the fourth ventricle. It must be admitted, however, that glycosuria is comparatively rare in such cases, and when present the quantity of sugar in the urine is small.

Sugar appears in the urine after the administration of phloridzin, and until recently we have been taught that temporary glycosuria may be induced by the administration of certain drugs, as strychnia, curare, chloroform, ether, and carbon monoxide. Our improved methods of testing, however, have conclusively shown that the substance in the urine in these cases which reduces the copper test is glycuronic acid and not sugar.

Temporary glycosuria may be induced by cutting or puncturing various parts of the nervous system, by wounds of the liver by means of needles; by injecting acids or stimulants into the hepatic veins, and by violent irritation of some sensory nerve. It is more than probable that in all such cases the glycosuria is brought about by interference with the center for the vasomotor nerves of the liver. Inasmuch as in all these cases the glycosuria is slight, and of only temporary duration, the interest attached to temporary glycosuria of this order falls more within the province of the experimental physiologist than that of the clinician.

Comparatively recent observations have shown that complete extirpation of the pancreas in dogs

gives rise to permanent diabetes, resulting in the death of these animals. These observations are of value in demonstrating that the pancreas, in addition to secreting the pancreatic juice, plays an important rôle in the process of general metabolism.

In working out the significance of the above observations the author hopes soon to lay before the profession the results of some experiments he is conducting with the view of determining the possible influence that injections of healthy pancreatic extract may exert over genuine diabetes.

Glycosuria of pronounced and persistent form belongs to the province of diabetes mellitis, and may always be regarded as symptomatic of grave defect, either in the brain, liver or pancreas. In young subjects the disease is pretty uniformly progressive; and that towards a fatal termination in from a few months to four or five years. This is notably the case in patients under twenty years of age. In the middle period of life, the disease is somewhat less severe, and slightly less fatal. After fifty years of age the disease is often mild and amenable to careful dietetic management.

Persistent glycosuria is the most constant and certain of all the symptoms of diabetes mellitus, being in fact often the only symptom of the disease, and herein lies its great clinical importance. It is therefore of the utmost importance to be able to readily recognize the presence of sugar in the urine, since by the habit of routine search very serious forms of disease are often unexpectedly revealed, and in the course of clinical investigations, diagnostication of the most positive nature often hinges upon this point alone.

DETECTION OF SUGAR.

The tests for sugar in the urine at present are numerous, but few, if any, of them, however, can be said to be altogether satisfactory. If the quantity of sugar be large, little difficulty will be encountered in its detection by the most ordinary tests in use. If on the other hand the quantity be small, say one-half of one per cent., or less, most of the ordinary tests for sugar in the urine behave with uncertainty, and moreover, many of them absolutely fail to give trustworthy information.

Preliminary to submitting the suspected urine to chemical tests for sugar, the physical characteristics of the urine should be noted, more especially the color and specific gravity. As a rule if the urine contains a marked amount of sugar, the color is light and of a greenish hue, and the specific gravity is decidedly high—1,030 or above. The most popular method of searching for sugar in the urine is by means of the copper tests. These all depend upon the fact already noted, that in strongly alkaline solutions grape sugar reduces the copper salts to lower grades of oxidation, precipitating the suboxide in the form of a yellow, or yellowish opaque deposit.

TROMMER'S TEST.

This test may be most conveniently performed, as follows: About two drachms of urine in an ordinary test tube is first treated with sufficient cupric sulphate solution to render the urine a light green color, after which an equal volume of liquor potassæ is added. At first a blue precipitate of hydrated cupric protoxide results which dissolves upon agitation, forming a beautiful clear blue solution. If allowed to stand a half hour or so, reduction gradually takes place, especially if much sugar is present, resulting in precipitation of yellow, or yellowish red suboxide of copper. If instead of standing half an hour, gentle heat be applied, this test becomes more delicate, and moreover reduction occurs at once, as follows: First, a yellowish opacity appears, due to the formation of hydrated suboxide of copper, and upon further boiling it loses its water and forms a brick red precipitate of anhydrous cupric suboxide.

The test is open to two objections: First, if it be not submitted to boiling it is not very sensitive and will only detect sugar when present in considerable quantity. Second, if boiled, more especially very long, the test is rendered over sensitive so that reaction may occur with substances in the urine other than sugar for the following reasons: The power of reducing cupric oxide in alkaline solutions is possessed to a feeble degree by a number of substances in both normal and abnormal urine, such as uric acid, creatinin, mucus, indican, hippuric acid, hypoxanthin, tannin, carbolic acid, etc. Now, in Trommer's test the quantity of urine submitted to the copper solution is relatively large, which greatly increases the chances of reduction by non-saccharin agents.

FEHLING'S TEST

has perhaps enjoyed the greatest popularity of all the copper tests for clinical use. The great objection to Fehling's solution is its well known tendency to deteriorate upon keeping, which is chiefly due to the instability of its contained sodium tartrate. It will be remembered that when an alkali is added to a solution of cupric sulphate an abundant precipitate of hydrated cupric protoxide is thrown down. In order to hold this in solution some vegetable product must be added which will not reduce the cupric protoxide. Unfortunately in Fehling's solution a very unstable salt, the sodium tartrate, was chosen for the above purpose. Schmiedeberg suggested an improvement in the formula which adds greatly to the stability of the solution, viz., the substitution of pure mannite for the sodium tartrate. Fehling's test is also now prepared dry, in the form of two compressed tablets, or pellets, which are dissolved forming the solution as per regular formula at the time of application of the test. In the author's experience these pellets are even more unstable than the old form of Fehling's solution and are therefore not recommended.

HAINES' TEST.

On the whole the most excellent form of the copper test for sugar qualitatively is that devised by Professor Walter Haines of Chicago. The preparation of this test is simple in the extreme, as follows: Thirty grains of sulphate of copper are dissolved in half an ounce of distilled water, to which half an ounce of glycerin is added, and the whole is then mixed with five ounces of liquor potassæ. In testing with this solution a drachm is gently boiled and the urine added drop by drop until six or eight drops are added but not more. If sugar be present a copious yellow or yellowish red precipitate is thrown down consisting of the usual anhydrous suboxide of copper.

The advantage of Prof. Haines' test for qualitative purposes over other forms of the copper test are: First, it is entirely stable, which enables it to be

kept on hand indefinitely. Second, it is simple in construction, its components being at hand in all ordinary drug stores. Third, the relatively small quantity of urine employed in testing—six or eight drops only—renders it least likely to mislead one through reducing agents in the urine other than sugar. Fourth, its delicacy is at least equal to that of any other form of the copper test.

With regard to the copper tests in general, it is important to bear in mind that boiling should not be too long continued, otherwise slight reduction is liable to occur with urine when free from sugar; about half a minute should constitute the usual limit of time. Lastly, it should be remembered that strongly alkaline solutions are apt to precipitate from the urine the earthy phosphates of calcium and magnesium in the form of a grayish cloud which should not be taken for the cupric reduction.

FERMENTATION TEST.

This test depends upon the fact that grape sugar is decomposed in the fermentation set up by yeast; yielding alcohol, carbon dioxide, succinic acid, and a number of other products with resulting decrease in the specific gravity of the urine. For qualitative purposes the following method of applying the fermentation test will be found best. Fill an ordinary test tube half full of mercury and the remaining half with urine to be tested, and introduce into the urine a small piece of German yeast. Next close the mouth of the test tube with the thumb and invert over a small vessel of mercury and set aside in a warm room for several hours. If sugar be present fermentation proceeds at once, liberating the carbonic acid gas, which collects in the upper end of the tube, displacing the urine and mercury more or less according to the quantity of sugar present.

This test may be considered trustworthy for the detection of considerable quantities of sugar; but the capacity of the urine itself for absorbing carbonic gas renders this test uncertain in detecting sugar if present in quantities less than one per cent. This, with the fact that it takes several hours to make this test renders it inapplicable for routine work.

BISMUTH TEST.

Sugar possesses, as already noted, the power of reducing bismuth salts with resulting black precipitate, and upon this fact Bottger first suggested the bismuth test. Traces of sulphur which are often present in the urine, cause the same reaction with this test as does sugar, and therefore this test cannot be considered trustworthy unless performed by Brucke's method, which is too tedious for practical clinical work.

PHENYLHYDRAZIN TEST.

This test suggested by Fischer, depends upon the power possessed by phenylhydrazin in forming with grape sugar a highly characteristic crystalline compound termed phenylglucosazone. This test may be practiced as follows: Two parts of phenylhydrazin hydrochlorate—as much as will lie upon a dime piece—and three parts of sodium acetate are mixed together with two drachms of the suspected urine in a test tube and a little water added. The whole is brought to the boiling point and gently boiled for about half a minute, and then set aside and allowed to cool. If sugar be present, even in a minute quantity, there forms a yellowish crystalline deposit, which may appear amorphous to the naked eye, but which when examined under the microscope is seen to contain yellow needle shaped crystals, detached or arranged in star-shaped clusters.

This test gives probably the most trustworthy results of all known tests of sugar in the urine, equally reliable with every variety of morbid urine. The phenylhydrazin test gives no reaction with uric acid, urates, creatinin, mucus or normal urines; nor with such bodies occasionally present in the urine as oxybutric acid, urochloralic acid, uroxanthic acid, tannin, morphin, salicylic acid, carbolic acid, etc.

Among the other tests more or less used for detecting sugar in the urine may be mentioned picric acid, brought forward by Johnson, of London; acetate of lead and ammonia (Rubner); alpha, napthol and thymol (Molisch); indigo carmin (Mulder); bichloride of tin (Maumene); chromic acid (Hunefeld); sulphuric acid (Runge) and polarization.

None of these tests possess special advantages; of those considered, on the contrary, most of them are greatly inferior.

In searching for sugar in the urine, a test should be selected for routine work which is simple in application, reasonably trustworthy, and perfectly stable, so that it may be kept on hand for use when required. In all these respects Haines' test is very desirable.

The following suggestions may aid the observer in avoiding error and reaching accurate results. First, before testing always thoroughly cleanse all utensils to be employed in the analysis. Second, in using the copper tests always employ at first a minimal amount of the suspected urine, gradually increasing until reaction be obtained or the stated limit be reached. This method greatly decreases the risk of reduction by other substances than sugar in the urine, and moreover it gives a rough idea of the quantity of sugar when present. Third, if any doubt arise as to the presence of sugar in the suspected urine, after the application of the routine test, an appeal should be made to one or more of the others mentioned. For this purpose the phenylhydrazin test is desirable above all others, both because of its exceeding delicacy, and its present known property of reacting with few other substances than grape sugar.

DETERMINATION OF SUGAR.

Having detected the presence of sugar in the urine, it is in all cases highly important to determine its quantity, for the following reasons: Such knowledge furnishes the truest evidence of the grade or severity of the disease; it furnishes the most solid basis upon which to construct the prognosis and it gives the most trustworthy evidence as to the results of treatment.

THE FERMENTATION METHOD

is best conducted by Robert's system of observing the differential density of the urine before and after complete fermentation. The objections to this method are that it takes twenty-four hours to reach results which are by no means accurate when attained, which may be proved by making a series of observations upon the same urine. The fermentation saccharometer devised by Einhorn is even less accurate than Robert's method. These instruments are intended to collect and measure the carbonic

acid gas involved in fermentation, but the urine itself absorbs a very considerable volume of the carbonic acid gas of which the instrument takes no account.

TITRATION METHOD.

This has hitherto been most practiced with Fehling's solution. The principle of the process depends upon the fact that in reduction of cupric oxide in solutions of definite strength by grape sugar, the blue coloration disappears by the addition of a definite quantity of the sugar.

The chief drawback with this test is the fact that when the blue color fades, the yellow suboxide of copper takes its place, and so obscures the color change that it is almost impossible to determine the precise point of complete reduction. This can only be approximately remedied by repeated boiling and standing after successive additions of a few drops of the urine, and it has already been stated that prolonged boiling impairs this test. In addition to this, Fehling's solution is so unstable that it must be freshly prepared to be depended upon. It will therefore be found if all precautions be observed that the determination of sugar by this test is tedious and difficult, and calls for an accuracy of manipulation which few but experts possess. It therefore seems amazing that by common consent this test has been so uniformly recommended to meet the requirements of the physician in every day clinical work.

In view of the fact that quantitative testing to sugar in the urine has never been rendered satisfactory for the requirements of the clinician, the writer has after some labor and experimenting constructed a formula which will overcome the objections to the present methods, and over two years' experience in its daily use warrants the claim that it is well adapted to the requirements of the physician and student, for the following reasons: It enables one to determine accurately the quantity of sugar in a given sample of urine in from two to five minutes; the test solution is stable and will if properly prepared keep for months without impairment. It is easy of application, the apparatus required being of the simplest order. It may be made available either for exact or approximate estimation; in the latter case more simple and rapidly than in testing qualitatively for albumen.

The formula for the test is as follows:

℞. Sulphate of copper (pure), 48 grains.
Caustic potash (pure), 144 grains.
Strong ammonia, 9 ounces.
Glycerin (pure), 6 drachms.
Distilled water to 20 ounces.

This solution should be prepared by dissolving the copper sulphate in part of the water and adding the glycerin. In another portion of the water dissolve the caustic potash. Mix the two solutions and add the ammonia. Finally, with distilled water bring the volume of the whole to twenty ounces.

The principle upon which the application of this test depends is the fact that a definite quantity of the solution is reduced upon boiling by a definite quantity of grape sugar, causing complete disappearance of the blue color, and leaving at the exact point of reduction a brightly transparent and colorless fluid. Thus ten drachms of this solution are reduced upon boiling by exactly one-third grain of grape sugar.

The test is best conducted as follows: Have on hand an ordinary retort stand, a graduated minim burette, a four-ounce glass flask and a spirit lamp. Proceed by measuring ten drachms of the test solution into the glass flask and dilute with about two volumes of distilled water. Place the lighted spirit lamp beneath the flask and while the solution is heating fill the burette with the urine to be tested and screw the burette into the arm of the stand in such a position that the urine will drop into the test solution when the stop cock is turned. When the test solution begins to boil, discharge the urine from the burette, slowly, drop by drop, into the boiling test solution until the blue color completely vanishes and leaves the solution transparent and colorless. The quantity of urine it takes to discharge the blue color represents just one-third grain of sugar. Divide 480 (the number of minims per ounce) by the number it took to discharge the blue color and the product is the number of one-third grains per ounce, which divided by three gives the number of grains per ounce. Thus if sixteen minims of urine reduce the test there are thirty third grains, or ten grains per ounce; $\frac{4.8.0}{16} = \frac{3.0}{3}$ = ten grains. If it be desired to know the percentage amount of sugar, simply divide the number of grains per ounce by 4.8.

POLARIZATION.

Grape sugar possesses a right rotary power over polarized light, and upon this fact has been based a method of quantitative testing for sugar by the polariscope. The more elaborately constructed instruments for this purpose are those of Lippich, Mitsturlich, Soliel, Laurent, Wild and Von Fleischel, but the expense of such instruments, and the dexterity required in using them, must always prevent their general use. Ultzmann has recently devised a polarizing saccharimeter which is comparatively simple, both in its construction and manipulation; and the entire apparatus can be had for a comparatively small cost. From considerable experience in the use of the instruments, the writer finds that they are not to be depended upon for determining sugar in the urine if present in quantities less than one and a half or two per cent. It should always be borne in mind that in diabetes the urine is apt to contain laevulose and oxybutric acid, both of which rotate polarized light to the left, rendering this test subject to occasional errors from these sources.

LAEVULOSURIA.

Fruit sugar—laevulose—has been found in the urine of persons whose symptoms correspond closely with those of diabetes. In such cases the laevulose may be associated with grape sugar, or it may appear alone, but usually the former is the case.

Laevulose turns the plane of polarization to the left, and this fact enables us to distinguish it from grape sugar, which turns it to the right. Laevulose reduces copper salts, as does grape sugar, although more feebly than the latter. It also yields the characteristic reaction of yellow crystallization with phenylhydrazin hydrochlorate. Laevulose does not crystalize, and does not ferment so readily as does grape sugar.

CLINICAL SIGNIFICANCE.

Aside from the fact that laevulose is sometimes found in diabetic conditions, either alone or in association with grape sugar, little else is known of its clinical significance. It has been stated

that the excessive ingestion of cane sugar, as well as sugars of certain kinds of fruits, may cause the appearance of laevulose in the urine, more especially in conditions of disturbed digestion. This, however, is rather conjectural than the result of observation, although cane sugar is converted in the intestines into glucose and laevulose.

DETECTION.

If saccharin urine deflect polarized light strongly to the left, we may infer that the saccharin substance is laevulose. If other known substances which turn polarized light to the left be excluded, it may be regarded as certain that laevulose is present.

LACTOSURIA.

Lactose, or milk sugar, crystalizes in white rhombic crystals, is soluble in six parts of water, possesses a right rotary power over polarized light of +59.30, does not readily undergo alcoholic fermentation, and it reduces the copper salts upon boiling in alkaline solutions. If long boiled with dilute acids, it forms galactose, which, treated with nitric acid, yields mucic acid.

CLINICAL SIGNIFICANCE.

Lactose occurs frequently in the urine of women who are nursing, the quantity being very small as a rule, although it may reach as high as three per cent. and be attended by all the usual symptoms of diabetes, as in the case under the care of Dr. Ralfe at the London hospital. In this case the woman was suffering from debility, and lactosuria occurred after three successive confinements, the urine being free from sugar during gestations.

Lactose may be said to be nearly always present in the urine of women two or three days after confinement, and just before milk appears in the mammary glands—during milk fever; and the same may be said of women within a day or two after weaning their children. Lactosuria may also arise from any cause which prevents the milk from escaping from the mammary glands during lactation, such as inflammations involving the mammary ducts.

DETECTION.

If urine give the characteristic reaction of grape sugar with alkaline solutions of copper salts, and if it also causes extreme deflection of the polarized ray to the right, it is probable that lactose is present. If confirmation be desired, the lactose may be isolated from the urine and recognized by its characteristic crystalline form.

INOSITURIA.

Inosite, or muscle sugar, crystalizes in two forms: *a*. In large rhombic tablets, and *b*, in small groups of oblique prisms. It is soluble in six parts of water 20° C., is insoluble in alcohol and ether, does not undergo alcoholic fermentation, possesses no rotary power over polarized light, does not reduce alkaline solutions of copper salts, although it gives with them a greenish tint upon boiling, which clears up on standing, and again turns green on heating.

Although termed muscle sugar, inosite has been found in the lungs, spleen, liver, kidneys, and brain; and it has been found in the urine in a number of morbid conditions.

CLINICAL SIGNIFICANCE.

Inosituria has frequently been met with in diabetic condition, either alone or associated with glycosuria. It has also been observed in typhus, phthisis, syphilitic cachexia, and in diseases of the medulla. In a number of cases of inosituria Ralfe observed moderate polyuria, loss of flesh, general malaise, and considerable aching of the limbs, although no tangible disease could be made out.

Inosituria not infrequently takes the place of glycosuria, especially in the milder grades of diabetes, or in convalescence from the latter. Inosituria is also occasionally associated with albuminuria in Bright's disease. Galois found inosite in the urine of seven out of 102 patients examined. Of these it occurred five times in thirty cases of diabetes and twice in twenty-five cases of albuminuria.

DETECTION.

If a solution of inosite be evaporated with a little nitric acid on platinum almost to dryness, and the residue be moistened with ammonia and solution of calcium chloride, and the mixture be again evaporated carefully to dryness, a vivid rose red color arises, which is apparent with even one miligram of inosite (Scherer); other sugars do not give this reaction.

57 East Twentieth street, Chicago.

DR. N. S. DAVIS, Jr., Chicago—I wish to bear testimony to the excellence of Dr. Purdy's test. During the last few months I have tried it a considerable number of times and found it both complete and accurate. It is no more convenient it seems to me than Fehling's solution when one is familiar with it, and sufficient experience is gained so that the time when there is complete reduction is easily detected; but if one has not had this experience Dr. Purdy's apparatus is much more convenient and reliable. In using Fehling's solution, if a copper solution of standard strength is kept separate from the remainder of the solution, and mixed each time it is to be used, it can be kept indefinitely.

DR. C. W. PURDY, Chicago—In reply to Dr. Davis I would say that it is not only the advantage of the mere novice being able to detect the exact point of reduction in the quantitative test, but it is the *keeping* qualities of the test, which are as perfect, I think, as any test can be. It will certainly keep well from three to six months in an office, if it is corked; if not, it loses the ammonia. The keeping qualities are of importance in a test of this character.

THE COMPLICATIONS OF CHRONIC NEPHRITIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY WM. C. DABNEY, M.D.

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It is not an easy matter to draw a fast and sharp line between the *symptoms* of chronic nephritis and the *complications* which occur with greater or less frequency in this disease. Indeed, the symptoms of the different forms of chronic inflammation of the kidneys may become so serious as to constitute complications of the gravest character and necessitating the most careful management.

I shall not attempt in the present article to study all the complications of chronic Bright's disease, nor shall I attempt to consider any of them in very great detail, but I wish to bring to your attention some of those which seem to me most important, either from the frequency of their occurrence or the

gravity of the symptoms to which they give rise. I propose to study them under the following headings:

1. The cardiac and vascular complications.
2. Those connected with the nervous system.
3. The respiratory.

The Cardiac and Vascular Complications.—So far as the heart is concerned I shall limit my remarks to hypertrophy of the organ, and shall not consider the connection between valvular diseases and chronic renal inflammation.

With respect to the *frequency* of hypertrophy of the heart in Bright's disease the investigations of Formad have given us positive and clear information. In 300 cases of chronic Bright's disease examined by him, hypertrophy of the heart was found in 62 per cent. But while this was the per cent. of all cases, there was a very striking difference in the frequency of cardiac hypertrophy in the chronic *parenchymatous* form on the one hand, and the *interstitial* on the other. Thus of 150 cases which he himself examined, "hypertrophy of the heart in connection with the parenchymatous form of nephritis occurred in 54 per cent. of the cases, and in the interstitial nephritis in 92 per cent." Of 150 cases taken from the records of the Philadelphia Hospital, "hypertrophy of the heart in connection with parenchymatous nephritis occurred in 56 per cent. of all cases, and in the interstitial nephritis in 60 per cent."

The vascular changes—that is, the changes in the aorta and larger blood vessels—were present also in a large proportion of Formad's cases—52 per cent.—but endarteritis and peradenitis of the renal blood vessels was rarely found except in connection with interstitial nephritis, where it was observed in 90 per cent. It is a matter of interest to determine if possible what relation the cardiac and vascular changes bear to the renal disease, but I need not say that there is still a wide diversity of opinion on this point.

There are three possible explanations of the connection between the two: 1, that the kidney disease *precedes* the heart and arterial trouble and stands in a causative relation to it; 2, that the two are caused by the same agent and progress simultaneously; and 3, that the disease of the vessels is primary and the renal affection secondary thereto.

I do not propose to go into a consideration of the general causes of endarteritis and atheroma or the physiology of the kidney, but there are several points of practical importance in this connection, and about which I believe there is no difference of opinion among those who have studied these subjects carefully. Briefly stated these points are as follows:

1. Various substances are found in the body or are taken into the body from without which are capable of causing inflammation or degeneration of the tissues with which they come in contact.

2. These substances enter the blood vessels and are carried by these vessels to different parts of the body, where they are or should be eliminated.

3. The organs whose duty it is to eliminate these substances are the kidneys, the bowels and liver and the skin. (Elimination may take place from other parts also, but it is of little practical importance.)

It follows from these general propositions that the noxious matters which cause inflammation of the parts with which they come in contact may be present in the blood in excessive quantity, either from increased formation or from defective elimination, and it would reasonably be inferred also that the most frequent seats of such inflammation would be in the heart and blood vessels and in the eliminative organs, the kidneys, liver, etc.

Now how far do the facts accord with these theoretical considerations? We know that certain toxic matters, such for example as the poison of scarlet fever, are apt to cause inflammation of the lining membrane of the blood vessels and also of the kidneys.

Another common illustration is found in the endarteritis and renal changes which occur in gout.

In the case of scarlet fever we have a poison which is entirely foreign to the body and is never found in it in health; in the case of gout the toxic substance is found normally in the body, but is present in this disease in great excess. In the one case—scarlet fever—the poison is not constantly found and is soon eliminated so that its action ceases, while in the case of gout the toxic substance is constantly found and the irritation resulting from it is more prolonged, and leads to changes of a far more lasting character. There is a further difference, however, in the two cases. The poison of scarlet fever, so far as the kidneys are concerned, acts chiefly on the cells lining the tubules, while the gouty poison acts but little on these cells, but causes inflammation and thickening of the walls of the renal blood vessels. Formad, in the paper to which I have already referred and which is such a mine of information, calls attention to the slight degenerative changes in the renal epithelium in cases of interstitial nephritis, "red granular" or "gouty" kidneys. Gaucher states that the large white kidney (one stage of parenchymatous nephritis), is due to excessive formation in the body or the introduction from without of extractive matters, and he says it may be caused by the excessive use of beef extracts.

In all cases of parenchymatous nephritis of *serious character* there is renal inadequacy; or in other words, certain substances which should be removed by the kidneys are retained in the blood; and this renal inadequacy leads to increased arterial tension (Musser, *Times and Register*, Philadelphia, October 17, 1890; also Bradstreet on The Pulse, p. 156). Nor is the renal inadequacy confined to *parenchymatous* nephritis. In interstitial nephritis it is very marked, but it is probably of late occurrence in these cases, and is due rather to a diminution in the extent of excretory surface than to a change in the excretory cells themselves. It is a well known fact, furthermore, that hypertrophy of the heart does not occur to any appreciable degree in acute nephritis; nor is it marked in the early stages of the chronic parenchymatous disease. As a rule, however, the cardiac and vascular changes become more and more marked in proportion to the duration of the affection. But in many cases, as Formad's examinations show, it is slight at the time of death. The following cases, which have been under my immediate observation for a number of years, will illustrate this point:

Mrs. R. J. M. had a severe attack of puerperal eclampsia in 1880, from which she recovered in due time; since then she has given birth to six children, but her urine has never been free from albumen, and hyaline and granular casts can often be found in it; she has some dropsy occasionally also. During each of her pregnancies the condition of her kidneys has been such as to cause me great anxiety, but she has never had a recurrence of the eclampsia.

Now in this case there has never been any evidence of cardiac hypertrophy or of vascular change. In another case which terminated fatally during the past winter there were the gouty symptoms but no enlargement of the heart:

Miss G. came under my care in August, 1890. Her age was 36. She consulted me for some attacks of nausea and headache; there was no dropsy, and my attention would probably not have been called to the condition of her kidneys but for the singularly dark color of the skin, to which I have called attention elsewhere as a frequent symptom of chronic Bright's disease. On examination of this lady's urine I found albumen in large amount and considerable numbers of hyaline and granular casts. The symptoms continued with occasional periods of improvement till her death during the past winter, but at no time was there any perceptible enlargement of her heart.

The frequency and extent of the cardiac and vascular changes in chronic parenchymatous nephritis probably depend more on the nature of the toxic substance than on the amount in the blood at any one time, or even on the length of time that the poison is circulating in the blood. This explains the extreme frequency of such complications in connection with the "gouty kidney."

But it would not be in accord with the facts for us to adopt an exclusive view as to the connection between the cardiac and vascular changes and the renal disease. It seems to me then that we are justified in adopting the following views:

1. Cardiac and vascular changes are far more common in interstitial nephritis than in the parenchymatous form of the disease. In these cases the renal, cardiac and vascular changes go on simultaneously and are due to the same cause, and the cardiac and vascular changes are not the consequence of the renal disease, though they may be aggravated by it. It is an interesting fact that this form of nephritis occurs especially in gouty and rheumatic persons who are liable to inflammatory disturbances about the ligaments, etc., and that in such cases also endarteritis and atheroma also occur, being observed chiefly in the connective tissue coat of the arteries.

2. Cardiac and vascular changes also occur in connection with chronic parenchymatous nephritis, but they are much less frequent than in the interstitial form, and are probably *secondary* to the renal disease and caused by the retention of toxic matters in consequence of the renal inadequacy.

Directly connected with the cardiac and vascular complications are the *hemorrhages* which are of common occurrence in cases of chronic nephritis, and may lead to the most serious consequences.

Saverny (Thèse de Paris, 1890), has called attention to hemorrhages from the nose, which are of comparatively common occurrence in interstitial nephritis, and occur in the late stage. They are plainly due to the cardiac hypertrophy and the changes in the vascular walls.

Of far more importance and unfortunately of comparative frequency, are cerebral hemorrhages. Like bleeding from the nose, cerebral hemorrhage is far more common in the interstitial than in parenchymatous nephritis, and usually occurs late in the disease. Of the 150 cases tabulated by Formad from autopsies made in private practice or for the coroner, cerebral hemorrhage caused death in 16 per cent. Of the 150 cases taken from the wards of the Philadelphia Hospital, only 7 per cent. died from apoplexy.

Complications Connected with the Nervous System.—*Apoplexy*, while it is perhaps the most common complication of chronic Bright's disease, has already been briefly considered in connection with the cardiac and vascular changes, and I shall not have time to consider it more in detail at present. There are two or three other nervous complications, however, to which I wish to call attention as briefly as possible.

One of these is *sweating*. This symptom or complication might perhaps be classed with the cutaneous disturbances, but it is so clearly of nervous origin that I shall insert it here. Sweating is so common that it is apt to be overlooked or to have but little attention paid to it, but I have seen a most interesting case of *local* sweating in the course of chronic interstitial nephritis which was sufficient in degree to occasion great discomfort. The patient was a well known member of the medical profession and had been a sufferer from sclerotic Bright's disease for several years when profuse sweating of the face and head came on. The attacks occurred chiefly at night or in the early hours of the morning, and the amount of sweat secreted was very great, but it was confined exclusively to the head. The disturbance persisted with occasional intermissions till his death, about eight months after it first appeared.

Another nervous complication of Bright's disease to which considerable attention has been given of late years, is *insanity*. Alice Bennett (*Med. Standard*, December, 1890), thinks the mental disturbance in these cases is due to the renal insufficiency. Florant holds a similar view, but he thinks the patients have usually a "neurotic diathesis" (*Gaz. des Hôpitaux*, July, 1890). Raymond has reported an interesting case (*Gaz. Med. de Paris*, November, 1890), in which the mental alienation was more marked whenever there was an exacerbation of the renal disease.

The form of insanity differs in different cases. Acute mania may occur in chronic Bright's disease, as in a case mentioned by Raymond.

Sometimes the insanity takes the form of mental weakening, as in the following case:

Mrs. J., married a number of years and having two children, came under my care in the summer of 1889; she was then 43 years old. Twelve years before, just before the birth of one of her children, she had received a violent shock—had seen a man murdered in front of her house, and for months she lived in constant terror because her husband's life had been threatened by the Molly McGuires, who were then terrorizing the coal regions of Pennsylvania. Her child was born shortly afterwards and she finally seemed to recover her health and spirits entirely till some years afterwards—I could not learn the exact date, dropsy developed and Bright's disease of the chronic parenchymatous form was found to exist. From this time she continued more or less of an invalid, and her mind gradually weakened until she became almost entirely imbecile.

The following case presents a different picture:

Mr. C. D. came under my care in June, 1882; he was then about 50 years old; had always been temperate and had no history of syphilis; he was happily married, had a number of children, some of them grown, and was in comfortable circumstances. For some time before his friends had observed that he was inclined to exaggerate the most trivial matters and that his statements were not always entirely in accordance with the facts. He was inclined to indulge in silly or extravagant ventures. When I saw him the delirium of grandeur was well marked; there was no appar-

ent trouble about his heart or lungs, but his urine contained a considerable quantity of albumen and some hyaline casts. His mental symptoms grew worse during July, and Cheyne-Stokes breathing appeared and continued for several days. Early in August this symptom disappeared and his mental condition began to improve. His strength, which had been greatly impaired, also improved greatly, and by September he was able to be on the street and the only evidence of mental trouble was a decided emotional tendency. All this time the albumen and casts were found in the urine. During the early winter his intellectual faculties became so much impaired that it was found necessary to put him in an asylum, where he died a few months later of general paresis. No autopsy could be had. At no time prior to his removal from home was his urine free from albumen, and casts were frequently found in it.

The only other complications which I shall mention now are those connected with the *respiratory* system.

By far the most common of these is dyspnœa, which may occur in paroxysms or be more or less continuous. As a general thing it occurs in the late stages of the disease, but not uncommonly it comes on at a comparatively early period. Nor are all cases to be traced to the same cause. Leaving out of consideration its occurrence in pneumonia, which is not a rare complication of Bright's disease, it may be traced to, 1, uræmic poisoning; 2, cardiac failure; 3, pulmonary œdema; 4, œdema of the larynx; and in some cases to, 5, pleural effusion.

So far as I can judge from my own experience, the paroxysmal form is most common in interstitial nephritis, and is commonly connected either with a temporary but decided diminution in the amount of solid urine discharged or with cardiac degeneration and dilatation. It occurs especially in persons having a gouty history, as in the following case:

Mrs. D., aged 69, was taken about 2 o'clock one morning with a severe asthmatic attack which lasted several hours, and was finally relieved by inhaling the smoke of burning "niter paper." The family history of this lady showed a remarkable tendency to gout and she herself had gouty deposits in the finger joints of both hands; her heart was considerably enlarged and her pulse full and hard. From that time to the present she has been subject to similar attacks of dyspnœa, which are always relieved by the same means. She has frequent attacks of giddiness, often so distressing as to cause her the greatest anxiety, and her urine is abundant and of low specific gravity. I have seen her in a number of these attacks, and in none has there been any evidence of heart failure, so that I think the dyspnœa can scarcely be attributed to this cause.

Some years ago I saw in consultation this lady's brother in an advanced stage of interstitial Bright's disease. The trouble from which he suffered most was dyspnœa, but in his case it was plainly due to weakness of the heart's action and perhaps dropsical accumulation in the chest, for he had severe attacks of angina pectoris and there was general dropsy in addition; his heart was greatly hypertrophied and his arteries atheromatous. He died a few months later in an attack of angina pectoris.

In other cases the dyspnœa is plainly due to *pulmonary œdema*, but it is questionable whether this occurs frequently, if ever, unless there is serious loss of heart power.

Œdema of the larynx is a rare cause of dyspnœa, and only occurs, so far as I can learn, in cases characterized by great œdema elsewhere.

Pleural effusion, even in small amount, sometimes causes a very marked difficulty of breathing, as in the following instance:

A woman 24 years old applied at my clinic in November last for treatment. She had a general œdema and her urine was scant and contained albumen in very large amount. She had never had a child and the trouble came on gradually. She was given digitalis, squills and niter, and in a short time the dropsy had disappeared and she said she felt much better, but her urine contained albumen in large quantity. She was given wine and digitalis, and gained flesh and strength for some time. In January she complained of some pain in the right side and considerable dyspnœa, and flatness was found at the lower part of the left side of the thorax. She was again given digitalis, squills and niter, and the urinary discharge was greatly increased. In three weeks the pleural effusion had disappeared and the dyspnœa was almost entirely relieved.

Time will not permit a consideration of some other very interesting complications of chronic Bright's disease. It would seem from Formad's investigations that *pericarditis* is one of the commonest causes of death in the chronic forms of this disease, whether parenchymatous or interstitial, and yet I am satisfied it is often overlooked, and it is probable, I think, that in some cases the dyspnœa is due to this.

OBSERVATIONS BASED ON AN EXPERIENCE WITH NEARLY ONE THOUSAND CASES OF TYPHOID FEVER.

Read before the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY JAMES B. HERRICK, M.D.
CHICAGO.

Within the past five years I have seen in the city of Chicago, in Cook County, Presbyterian and St. Elizabeth Hospitals and in private practice, nearly one thousand cases of typhoid fever.

The following observations are based on the experience with these cases:

Observations the result of clinical experience are accepted as true by the reader, only so far as the facts accord with those he himself has noted, or as the conclusions appeal to his reason, or as he has confidence in the ability of the observer to make accurate observations and correctly to interpret them. I fully realize the truth of the Hippocratic motto Professor Osler has put at the head of his book, "Experience is fallacious and judgment difficult," and I am aware of the weak points in a paper clinical in character, not experimental nor even statistical; and I fear lest what I write may seem trite and commonplace, for I am daily made conscious that much that is being put in type concerning the clinical side of typhoid fever is really but the restatement, though often from a different standpoint, of facts old, known to our predecessors, and often plainly set down in words in works now regarded as out of date. I have repeatedly been surprised, not to say chagrined, to find that some fact new to me, and that came to me with the pleasurable freshness of a genuine discovery, was a fact already noted by previous observers. [It pleases one that one's own conclusion, arrived at independently, tallies with that of a Fagge, Murchison, Liebermeister, Eichhorst, Trousseau or Flint; but one is chagrined to think that it requires a read-

ing and again and again, a rereading in the light of experience to fasten the facts once read firmly in mind.]

It has been my aim in preparing this paper to touch only those points of unusual interest, because rarity of the clinical phenomena, or because current literature, or discussion among medical men, seems to betray variety of opinion concerning those matters, or what has seemed at times a wrong conception of them.

Circulatory System. The pulse of typhoid is a *slow* pulse, and this notwithstanding a high temperature. I could show many history sheets where the pulse never reached one hundred, while the temperature ranged from 103° to 105.5°. The average in women is higher by five to fifteen beats to the minute than in men. A pulse of ninety in a bed-patient, with a temperature of 103°, should be regarded as a diagnostic feature in favor of typhoid. A pulse of over one hundred and six in a male with typhoid is one needing most careful watching. And above all, a pulse that is, especially in the first two weeks, to-day one hundred, to-morrow one hundred and four, one hundred and ten, one hundred and sixteen, etc., is one of bad omen.[1] The disproportion between pulse and temperature is, I believe, as characteristic of typhoid as is the rapid pulse of scarlet fever. Liebermeister lays great stress upon this point, and says that of those with a pulse as high as 140, 50% die; over 140, 80%; over 150, 90%. The compressibility of the pulse and its frequent dicrotism, and occasional intermittent character, have been repeatedly noted. Bradycardia is a common phenomenon of convalescence; but, on the contrary, many a patient whose pulse has never exceeded one hundred while in bed and who, as apyrexia has been reached, has had a pulse rate of only fifty or sixty has, on first getting out of bed, had the pulse jump to one hundred and twenty or one hundred and forty. The pathological basis of this irritable heart may be in myocardial degeneration. One of the County Hospital typhoids who left contrary to orders, after the temperature had been normal for only one week, on arriving home and after climbing two flights of stairs, fell suddenly dead. No autopsy was permitted. The existence of this cardiac irritability during convalescence carries its own lesson of enforced quiet during this period.

It has seemed to me that the absolute rest that has been insisted upon, together with the naturally low arterial tension and slow heart beat, especially as convalescence approaches, might account for the large number of cases of femoral thrombosis met with. In private practice I have seen it in five per cent. of cases in adults, never in children. In the Presbyterian Hospital last fall about one in ten had thrombosis. Murchison is authority for the statement that it occurs usually in only one per cent. of cases. No serious consequences have followed this complication beyond the persistence, often for months, of œdema of the affected limb, whenever the limb was for any length of time in a dependent position. I have never seen pulmonary embolism in consequence of femoral thrombosis. No veins other than the femoral or its radicals have been affected.

[1] Chantemesse, quoting Malherbe and Parizol, says the period of cardiac weakness begins at one hundred and twenty beats to the minute and that the pulse of the fastigium oscillates between 8 and 104 in men and 104 and 120 in women. Traité de Médicine, I—p. 756.

Arterial obstruction by thrombus or embolus has not been met with in any of these cases.

Twice during convalescence an increase of temperature, pulse one hundred and twenty to one hundred and fifty, distinct endocardial murmur where none previously existed, in one case, praecordial pain, have given evidence of the rather rare complication, acute endocarditis. In one case there were, inside of a week, subsidence of temperature, reduction in pulse-rate, and almost total disappearance of murmur. In the other, the patient, at the end of four weeks in bed, left the hospital with rapid heart and mitral systolic murmur.

Skin. In my experience sweating is not usually present until late in the disease, that is, a sweating not produced by antipyretics. The statement of authors are here at variance; for instance, Pepper stating that sweating is more common in typhoid fever than in almost any other of the acute diseases, except malaria, relapsing fever and rheumatism.[2]

The papular rose-colored eruption has been present in the great majority of cases, yet absent in many. Eichhorst's one thousand consecutive cases with rash in every case is an unique record. It has seemed to me that where the papules were very abundant the patient was always very sick. On the contrary their scantiness, or absence, was no evidence of a light case. In only one case have I noticed the eruption on the face. In this instance it covered the arms and legs as well, and persisted, appearing in successive crops for over four weeks. I do not remember to have seen labial herpes in typhoid. The "peliomata" or "taches bleuâtres" I have seen but once. Body lice were found in this case. Bed-sores have been rare, owing to careful nursing. The only circumstances under which a bed-sore in a patient properly nursed can possibly be excusable and be looked upon as other than a blunder, as Dr. Henry calls it, is where an intestinal hemorrhage demands, for a time, absolute quiet of the patient. The skin over the sacrum kept moist by the oozing, bloody stool will become rapidly necrotic under a few hours pressure. One of the cases of acute endocarditis, above referred to, occurred in a patient with an unhealed suppurating bed-sore; I regard this as the infection atrium. The daily sponge bath with soap and water and also with alcohol, *i. e.*, the keeping of the skin as aseptic as possible, is I believe, responsible for the very few cases of furunculosis I have seen. I can recall but one case and that of moderate severity.

Facial erysipelas has not occurred in my cases, though in a few cases that sprang up in one of the wards at the County Hospital there was a uniformly fatal result.

Respiratory Tract. Epistaxis has been an early phenomenon in about 20 per cent. of cases. It was seen, not infrequently, in influenza, yet by no means as often as in typhoid. Severe epistaxis during the height of the disease, such as to cause evidence of acute anemia and to call for radical treatment, I have met with twice.

Laryngeal ulceration has not been carefully sought for. In one case only has laryngeal perichondritis occurred. This was in a lad of seventeen and convalescence from an unusually severe typhoid. A laryngeal ulcer, detected by the laryngoscope, probably gave to the bacteria admission to the deeper

[2] An American Text-book on Theory and Practice of Medicine; Vol. i. p. 70.

tissues resulting in the suppurative perichondrial inflammation. The patient recovered under tracheotomy, though he nearly died later by the closure of the tube through plugs arising from a fibrinous bronchitis. I do not know of any other instance of perichondritis in either the Presbyterian or County Hospitals during five years. Dr. E. Fletcher Ingals, whose counsel in this case was of great value to me, tells me that in twenty years experience as a laryngologist he has seen but one other instance of perichondritis arising during typhoid. Hölscher reports fifteen cases among 2,000 fatal ones.

Bronchitis has been of such frequent occurrence as to be regarded rather in the light of one of the pathological accompaniments of the disease, than as a complication. Its extent and severity, however, in some instances have made it a source of danger, and obscured the diagnosis. Once a case I regarded as miliary tuberculosis arising during typhoid, or perhaps, such from the beginning, made a complete recovery and compelled a return to the original diagnosis. And once in consultation, remembering this case, I was enabled rightly to reverse the diagnosis of tuberculosis back to typhoid.

Pneumonia has been very rare, at least rarely recognized clinically and *post-mortem*. Its insidious onset, the absence of chill, additional temperature, cough and rusty sputa, make us fall back on rapidity of respiration and physical signs as diagnostic data and rapidity of respiration is by no means a reliable sign. Many cases are probably due to the streptococcus, possibly the bacillus typhosus, and not to the diplococcus of Fraenkel. I believe the stern insistence upon strict cleanliness of the mouth and nose is responsible for the small number of cases of pneumonia and severe bronchitis I have seen. Air inhaled through a foul nose, mouth and pharynx carries to bronchi and alveoli numerous bacteria that excite irritation, if not specific inflammation. Inhalation of bronchitis and pneumonia I have aimed to avoid by oral cleanliness, and by insisting that the patient should be made often to change the position from one side to the other, and to the back, and lately by instructions to have him take several times daily full and deep inspirations. By these procedures fewer organisms enter the respiratory tract, there is less passive congestion of any one part, mucus tends less to accumulate in any one portion of the bronchi or alveoli, and it is more readily dislodged by the cough excited by the deep inspiratory effort.

Fever. The highest temperature observed was 106° axillary. This was in a child of ten years who had been given, by visitors, cake and candy. The mild course of the disease seemed from this time on to be aggravated, delirium, involuntary discharges, rapid emaciation following with continuance of unusually high temperature. Recovery followed. In another case, in private practice, a colored woman of forty, who varied her liquid diet by occasionally indulging in crackers, meat, peanuts and popcorn, and whom I could not induce to go to the hospital, and who spent nearly one-third of her time out of bed, I found twice a temperature of 106°. Three days after a normal evening temperature had been reached, she was up, weak and trembling to be sure, but doing a fair day's work at the ironing table. Her boy of ten years with a typical typhoid was, during his illness, never in bed for any one twenty-four hours, and never undressed. He recovered. In several cases temperatures have been prevented, I think, from passing 106° by antipyretic measures.

I have become strongly impressed with the great tenacity with which the fever in the early days, say the first twelve days, will cling to the high points in spite of our efforts to make it let go its hold. Again and again nurses have told me, with despairing faces, how after half an hour's sponging, the temperature has actually gone up instead of down. And, during the early days larger doses of antipyretics are required to produce an appreciable effect on the body heat. In the third week the fever is much more tractable. The five grains of phenacetin that on the ninth day barely reduced a temperature of 105° to 104°, will on the fifteenth cause a drop from 105° to 100°, or even to subnormal. I have learned to be extremely cautious in giving even moderate doses of these drugs in the third and fourth weeks of the disease. Seldom do I give more than three grains of phenacetin or two grains of acetanilid at such a time. The sponge bath at this time will usually reduce temperature without difficulty.

Prolongation of temperature when all evidence of typhoid is past, *i. e.*, when the bowels are regular, rose spots and tympany have disappeared, tongue is moist and spleen apparently normal in size, and where no demonstrable complication is present, is a very perplexing condition whose pathological cause cannot in all cases be explained. Catarrhal inflammation of the small intestines, ptomaine absorption, nervous influences, post-typhoid anemia, may explain some cases. Unrecognized inflammation of the mesenteric glands may exist. Twice have I finally found a serious pleuritic exudate, trifling in amount, which I thought explained the temperature. Lately I have, in this class of cases, commenced a cautious use of solid food, in spite of evening temperatures of 100° or 101°, have, a few times, allowed the patients to get out of bed, and had gratifying results. The nervous excitement is allayed, the condition of the blood improved, and as strength returns from the additional nourishment, the causes keeping up the temperature seem to vanish. The pleural exudate in the two cases referred to, disappeared under light diet.

I certainly believe that errors in diet may be the cause of inducing not only a recrudescence but a genuine relapse. I have never seen more than two genuine relapses in one patient, the entire duration of the fever being seventy-seven days. Several times I have seen what was apparently a reinfection occur before the temperature had reached normal.

Mild cases have been common. Apyretic typhoid I diagnosticated once on the basis of exclusion of other diseases, prevalence of typhoid, mental dullness, physical weakness, condition of tongue, enlarged spleen and slightly tympanitic abdomen, as well as by the fact of gradual improvement at the end of three weeks. Two other cases in the County Hospital, though not in my service, have been diagnosed as apyretic typhoid. One of these recovered. The second came to autopsy and typhoid fever lesions were found. This latter case must convince even the skeptical of the actual existence at times of typhoid infection without fever.

Of so-called abortive cases, or rapid cases, those that run their pyrexial course in from ten to twenty days, I have seen several, and especially in children.

In one boy of five years, rose-spots, delirium, diarrhœa, subsultus with typical temperature, going as high as 105°, make the diagnosis of typhoid unequivocally sure. Yet on the sixteenth day there was no fever, nor other evident relic of the disease.

Alimentary. The tongue gives to me much less evidence in making up a diagnosis, than in forming a prognosis. Only once have I seen a pharyngeal ulcer, and in this case on the uvula and extending slightly over to the soft palate.

In two cases parotid abscess has formed. Strict cleanliness of the mouth preventing so far as possible severe stomatitis and infection of the parotid by way of Steno's duct is the best prophylactic against suppurative parotitis, as it is one of the preventive measures against bronchitis and pneumonia, and middle ear suppuration. One case of parotid abscess was in a patient who came under my care on the tenth day of her illness, and who was in circumstances such that no nursing that ought to go by that name, was obtainable. She had, without exception, the filthiest mouth I ever saw in a typhoid.

In several cases vomiting had been so prominent early in the disease as to obscure diagnosis, by drawing attention to the stomach. It usually subsides in a few days. Vomiting late in typhoid has rarely been met with, and always excites suspicions of over-medication or over-feeding. Diarrhœa has not been present in more than half the patients, and then usually appearing in the second week. Patients with diarrhœa are sicker than the constipated.

Hemorrhage has occurred oftenest in cases attended by diarrhœa. I have never seen any benefit follow these hemorrhages, but on the contrary have too often seen death follow, once even in an hour, after the first appearance of blood, or later after the repeated recurrence.

Tympanites I seldom meet with, now that I use from the beginning some intestinal antiseptic, usually salol. Certainly its occurrence to such an extent as to be regarded as complication is a rarity compared with its rather frequent manifestation four years ago.

It is a mistake to expect sudden, sharp pain whenever intestinal perforation occurs. In some cases pain has been so marked as to cause the nurse to hurry for the house physician, with her diagnosis of perforation. But I have seen three cases where the patient, with perception not even ordinarily blunted by the disease, has had no sensation of sudden pain, made little complaint of pain save on rather violent manipulation of the distended abdomen. Autopsy in one case enabled me to make the diagnosis, in the other two it confirmed the antemortem diagnosis. Loss of liver dullness, especially if shortly before the dullness had been present, is a valuable sign, though not infallible.

Urine. Retention has several times necessitated catheterization. In a few instances a mild cystitis followed. Nephro-typhoid has been rare. Albuminuria has been common. Ehrlich's test has been frequently applied. Dr. A. R. Edwards,[3] then interne at the County Hospital, made a careful examination of the urine of one hundred and thirty typhoids (not all in my service) and found Ehrlich's reaction in ninety-eight and one-half per cent of the cases. He also found the reaction marked in the urine of tubercular patients, malarial, septicæmic, anemic cases, etc. It is known to be usually present in the urine of measles. Its diagnostic value is, therefore, extremely limited. Its absence speaks with a fair degree of certainty against typhoid, yet it failed me once in a case of typhoid just when I most needed it.

Nervous. I am convinced that under the treatment by intestinal antiseptics there is less delirium than without this method. A great many patients are mentally quite bright throughout the illness. Post febrile melancholia I have seen twice, and well marked mental weakness once. All three cases recovered. One case of peripheral neurities was observed in the Presbyterian Hospital last year, the lower extremities being involved. In not a few cases pain has been complained of over the region of the spleen. This I took to be due to a tightly stretched splenic capsule. Pain and hyperæsthesia in the soles of the feet and in the leg, especially over the tibia, have been several times observed during convalescence.

I regret my inability to furnish exact figures as to the proportion of cases among new comers to Chicago. In private practice twenty-six per cent. of my patients with typhoid had been in the city less than one year. I am confident that in the County Hospital where foreigners make up a goodly percentage of the inmates, thirty or forty out of every one hundred typhoids were new comers. The large influx of population to Chicago for the past few years, the new comer not possessing immunity against typhoid infection, may explain in a measure the fearful prevalence of this disease during the past five or six years. It has seemed to me that the new resident has been especially liable to a severe form of the disease. Almquist[4] quotes Murchison as saying that sixteen per cent. of his typhoid patients had not been in London a year. Louis is quoted as noting about the same percentage of new city residents among his typhoids and Almquist thinks in his own practice the same is true. "He who has not been early exposed to the poison," he says, "more easily falls a victim to the same." The frequent occurrence of the disease among medical students coming to Chicago from the country is worthy of note.

The necessity of extreme care in the nursing of typhoids, in the disposal of excreta, etc., has been strongly impressed upon me by the occurrence of a second case in the family in ten instances where the nursing was done by unskilled nurses or by the members of the family, as well as by the variety of the appearance of second cases where the services of a careful nurse have been available, and by the very infrequent appearance of typhoid development in the wards of our hospitals where at times in a single ward forty and fifty patients with illness other than typhoid have been crowded in among as many typhoids.

The bellying of the muscle as the biceps on sharply pinching it I seldom fail to find even quite early in the disease. I have found it as well in pneumonia, pulmonary tuberculosis, septicæmia, very rarely in malaria.

TREATMENT.

Rest. The recumbent position in bed has been insisted upon even during mild cases. No patient

[3] The Medical News, April 2, 1892.

[4] Sammlung Klin. Vorträge, No. 5, 1890. Ueber die Hauptmomente der ætiologie des Abdominal typhus.

has been allowed to get up until there has been a normal temperature for at least a week, and in the greater number of cases for a longer time than a week.

Diet. Liquid diet has been ordered, consisting chiefly of milk given at regular intervals every two to four hours, day and night, an adult taking, on an average, three pints during this time. Coffee, chocolate, cocoa, beef-tea, ice cream, egg-albumen water, egg-nog, are allowed to vary the monotony of the milk diet. Light diet is not allowed until there has been a normal evening temperature for from three to five days.

Fever. Sponging has been resorted to in most cases, whenever the temperature reached 103° or 103.5°. Cold, tepid or warm water has been employed, according to the effect upon the individual patient, or his likings. The ice-pack has been occasionally made use of, as has the ice-cap, and ice-coil to the abdomen. The cold bath treatment has not been employed, because circumstances made it unavailable. At times in private practice, and the hospital where crowded wards made systematic sponging for temperature a physical impossibility for the limited number of nurses, and again in those cases before mentioned, where sponging failed to produce the desired effect, antipyrin, phenacetin, or acetanilid have been given. Since I have learned to be cautious in using these remedies, and to give small or moderate doses, I have never seen any bad effect. Lowered temperature, slower pulse with firm, full beat, improvement in mental symptoms, free perspiration are the effects usually noted.

Intestines. Salol, ten to twenty grains in twenty-four hours, has been given in almost all of my late cases. Either these cases have been naturally light, or the intestinal antiseptic has modified the course of the disease, so that symptoms of intoxication have been less marked. The mind is clearer, there is less delirium, diarrhœa and tympanitis are present only in a trifling degree; prostration and emaciation are comparatively insignificant. An initial dose of calomel has been very frequently administered.

An enema usually of glycerin and water has been regularly administered on alternate days, whenever necessary by reason of constipation. Turpentine for excessive diarrhœa, especially if combined with tympanitis, has seemed, in cases, of benefit, though for tympany the enema, or use of the rectal tube, is more reliable. I have lately avoided opium unless strongly indicated.

Perforation. Surgery offers the only hope of relief, and from the fact that perforation occurs usually at a time when the patient is poorly able to withstand the shock of beginning peritonitis, let alone that of anæsthesia and operation, the recoveries must necessarily be few. When occurring in a patient not profoundly depressed by the disease, where the diagnosis is made early, and surgical interference is prompt, operation may result in cure. I was privileged to see the case under the care of Drs. Fisher and Van Hook, where the early and accurate diagnosis of the one and the prompt and scientific operation of the other resulted in a brilliant recovery. Of several cases operated on in the Cook County Hospital all have proven fatal. In no case where perforation has been diagnosed before death has there been any evidence of localization of the resulting peritonitis. General peritonitis and death have always followed.

Circulatory. The loss of four women in as many weeks in the female ward at County Hospital, where ante- and post-mortem diagnosis failed to reveal the anatomical lesion of any complicating disease, and where death occurred from sudden failure of the heart and collapse, taught me to give early, before symptoms of cardiac failure begin, some cardiac stimulant. Nux vomica, or strychnia I usually prescribe often from the start in small doses, so that the amount can be gradually increased. Alcohol I give much less freely than formerly, reserving it for the class of cases where in the third week we have the patient in the typical typhoid state.

Hemorrhage. I give ergot and acetate of lead usually, opium always. The latter drug even if it have no direct effect upon the circulation, quiets the patient, often restless and anxious from the acute anæmia, and lessens the peristaltic movements of the intestines. Cold is usually applied to the abdomen. The efficacy of treatment, save that of rest and opium, is doubtful.

TREATMENT OF TYPHOID FEVER.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY CHRISTIAN SIHLER, M.D.

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When the chairman of this Section invited me to read a paper here on the hydriatic treatment of typhoid fever in private practice, I wrote him that I would come but only deliver a short sermon on this text.

The cool bath treatment of typhoid fever can, ought, and will be carried out in private practice.

This method can be carried out in private practice; this I know, because I have been using it now for almost three and one-half years during which time I treated over ninety-five cases and must have had administered over 5,000 baths. Incidentally I would remark that so far I have never been called on account of any mishap or dangerous symptom depending on the baths. Now I think what I have done any of you can accomplish. My patients belong to the class of artisans and laborers, thus representing the masses of the people and the bulk of the community, and I think I have thus demonstrated that for the people as a whole the method is adapted. It would seem to me that amongst the educated and well-to-do I should have—in some respects at least—less of difficulties to overcome, because the former can more fully appreciate the reasons for the application of the method, and because the latter are better able to carry out the method to perfection.

And yet, while I insist upon it that the method is one generally applicable I am fully aware that there exist objections and difficulties in connection with this line of treatment. I will mention three. The first one which I think is the most valid one is this: It is not a pleasant sensation to step into a bath of 68° F., and the last five minutes which the patient has to remain in the bath seem very long to him. Furthermore, we know that four out of five of our patients would get well without the treatment, and on this topic allow me to quote from a letter from Dr. Brand: "As far as the pleasantness, or the oppo-

site, of the method is concerned you may give my regards to the gentlemen in Milwaukee, whom I should very much desire to answer the question which I have proposed to the confrères in France and Germany, but which has not been answered by them nor by myself. What are the signs in the beginning of the illness which will allow one to discern whether the course of the disease will be grave or mild? Out of 100 cases eighty will get well, and do not require the hydriatic treatment in its entirety. These are made to suffer to no purpose and might be treated more pleasantly if one could only recognize that they would certainly get well. But as this cannot be done, they have to be treated exactly as the twenty that are (or would be) doomed to die. It would be a great step forward if this matter could be remedied, and I would be the first one to express my joy and congratulations to him who could point out to me the signs of an absolutely favorable prognosis."

But to come back to the unpleasantness of the bath. Dr. Osler in a lecture quoting from a letter illustrates this difficulty. The quotation reads: "The prayers, entreaties, supplications, and last, but not least effective, the lusty yells of this girl at each bath were such as not to materially increase the repose of the neighborhood or strengthen to any extent the nerves of the family."

While I can not complain particularly about my female patients, and while I think that Dr. Osler pictures here an extreme case, I fully appreciate what Dr. Osler wishes to say, and know from experience with my patients enough of this matter—yet I am obliged to say that there are thousands and millions of sensible people in this country who are willing to be chilled and to shiver in order to increase their chance of recovery; mothers will do it for their children, fathers for their family—young people for their parents and themselves, and the physician certainly has no right to withhold the baths from his patients on this account. When the patient has positively refused to be bathed it will be time enough to do that. Should all the sensible people be deprived of the benefits of the baths, because a few silly persons behave like children? I think not. Furthermore, the patient is amply repaid for his sufferings lasting minutes, by sweet sleep and feelings of *bien sauci*, lasting hours.

In passing I will remark that in my opinion patients would suffer far less from a bath 68° of fifteen minutes than from one 70° or 72° of twenty minutes.

The second objection may be put in this form: The method is so complicated, demands so much time, so much skill and training on the part of the attendants that but rarely the conditions will be found that will allow the execution of the method.

Now, my experience has shown me that this objection is not as formidable as it seems to be. I have told you that the method was carried out by my patients, and only exceptionally were the conditions such that the method could not be employed. The majority of my patients were treated by other members of their family or friends, without any nurses. Glancing over my list I find A. Nehrenz, over ninety-five baths, nursed by his parents. O. Beyer, over ninety baths, also nursed by his parents. Soph. Walker, seventy baths, bathed by her mother and aunt. Rob. Schacht Schneider, nursed by wife and her sister. Ida Mann, sixty-seven baths; Anna Mann, eighty-eight baths, sisters, nursed by parents.

A great many of my patients have been nursed even by inexperienced persons with great accuracy and thoroughness—and to show how perfectly the thing is often carried out I send around the record of such a case, a young man nursed by his father and mother.

Now, there are thousands upon thousands in this country who are able and willing to do this as well —why, let me ask you, should they be denied the privilege of doing it—even if there be a few ignorant and slovenly people who can not use the method or do not care to use it?

But while a great many of my cases have been treated by members of the family, yet nurses, who have learned to use the method and have some experience with it, are in some instances a necessity and would be a great boon in every case, both to patient and doctor. There are some families that have very little natural ability for nursing, or that lack the necessary determination to carry out the treatment of our unwilling patient, or the case may be a grave one, where no error should occur, or where contingencies might arise to make modifications of the directions necessary—in all such cases nurses should have charge of the case, and nurses then may be put down as a necessary part of the outfit to carry on the treatment. But this can not be urged as an objection to the method. It will be our duty to train such persons, and to overcome that difficulty.

The third objection is, the method will strike the laity as something so dangerous and unheard of that its introduction will be next to impossible.

Here again my experience has shown me that this objection on the part of laity is not insurmountable —it has not been very great even. In fact, the hindrances to the introduction of the method are to be looked for somewhere else. I have found that if I asked 100 persons of the laity to use the baths, ninety-five used the baths, five refused. If I ask 100 doctors to employ the baths, ninety-five will refuse and five only will make use of them.

Why should a patient be afraid of the method if his physician can insure him that there is no danger? Where the method can not be introduced there must be something wrong with the relation of patient and physician. I must admit that where the method is altogether unheard of it requires some backbone on the side of the physician, but there are men who have that. I believe that there are always sensible people who will not object to the use of the method. They will set an example and happily the good effects of the method are so glaring that the laity, especially such as know something about typhoid fever and the zero effects of the medicinal treatment, will soon be converted and will recommend the method to their friends. Inasmuch as I refuse to treat any case not willing to use the baths, I had some patients go somewhere else—but for every case I lost I have gained two or three. In the first year I had to do some talking and had to make my patients acquainted with the contents of these tables, but now I think the majority would not be treated otherwise than by baths, and people come to me for the very reason that I use the Brand method. Of course, the laity really become acquainted with the good effects of the baths sooner than the physicians, because the latter never see them.

And now if there are any present who should feel like giving the method a trial, to them I would give a few words of brotherly advice under the following heads: 1. Bath tubs.—First of all when you get home have a bath tub. I had one one-half year before I could use it, and while it was standing around in my shed my wife had her own opinions about the big box. My tubs are four cornered and of sheet iron; a convenient size being 5½x2 feet and sixteen inches high. If you have such a tub you will feel like using it, and if you have not, you will have a good excuse for not using it. The reason why you should have your tubs on hand are three: First, your patients, thinking you know all about the method, will use it with more confidence. Second, you can save expense to your patient and make it easy for poor people. Third, you can act promptly. My once lonely tub has now nine companions, of course of different sizes, and with none of my instruments have I done as much as with these tubs.

2. Nurses.—As soon as you have a chance instruct one or more suitable persons in the use of the method. Such persons must have a natural inclination to such work, be willing and able to do bodily labor, must be reliable, wide-awake, cleanly and a little domineering—so that patients will obey her orders. I have trained two such nurses and the success I have had is in a large part due to their excellent qualities, and I say in cool blood, if one of my children should have typhoid fever and I should have the choice between all the medical wisdom in this room—that of Murchison thrown in, *without the bath tub* and between one of these nurses with her tub, I should unhesitatingly place it under the care of the nurse.

At times when the patients are in moderate circumstances, such a nurse goes to the house just for a day or two; by that time the family will have acquired the necessary skill and—what is of the same importance—the necessary courage. But as there is not much expense for medicine when the baths are used, and as the physician can restrict the number of his visits if one of his nurses is present, people who otherwise can not, are enabled to retain a nurse, and how much good do they not get out of a *good* one? Our nurses need not belong to the so-called trained nurses—we need some muscular christianity here. I do not know much about them. Seeing some little patients with a colleague, one of these trained nurses brought a long column of figures showing pulse and temperature, absolutely good for nothing, excepting to show off her having been trained. Had she, instead of disturbing the patient, darned the stockings or washed the diapers, I would have more respect for her and her kind. Such sort of persons we have, of course, no earthly use for. Pick out your own material and train it if you can.

3. First case.—You may do yourself and the method a great deal of harm, as did the young physician about whom Prof. Osler tells in his lecture, in case the first case you treat does not get well. Therefore, it is a thing of doubtful propriety to begin using the method on a case that has become grave and is in an advanced stage. I cannot urge upon you too strongly to make yourself acquainted with the views of Brand on this matter, who informs us that the principles for treating such cases are quite different from those for treating fresh cases. Let your first case then be one which you can treat from the beginning, and at the same time accurately, according to Brand.

4. Early cases.—The cases which will offer you the least resistance to the use of the method will be such, where friends or relatives have died from the disease. Here friends and patients are apt to yield readily, and further, those who had experience with the disease, having nursed perhaps a grave case under medicinal treatment, will appreciate your efforts more than others without such experience. I was much amused at a mother of one of my patients detailing to me the good effects of the hydriatic method. She had formerly nursed two other children through attacks of typhoid and could not help drawing comparisons.

5. Get your cases early, as it is of great importance that the baths should be given from the very beginning; inform your families, so that they will report early. Making visits if you have a few minutes to spare, tell them about the Brand method, what has been accomplished with it, how favorably it influences the course of the disease; if they are well-to-do people tell them how to buy a thermometer and how to measure the temperature in the rectum and tell them to report early. And if typhoid fever patients come to your office hand them a thermometer to be used in the evening, so that the baths may be begun next day if necessary.

6. Follow the directions of Brand as accurately as possible, and do not try to improve upon it. Let me also tell you that Vogl says one ought not to be discouraged if during the first years our success is not as great as those of men who have used the baths for twenty or thirty years.

And now let me just speak about a few cases illustrating what we have to do in using the method:

About a year ago, between 5 and 6 o'clock P.M., I was called to a lad 13 years old, with a high fever, ill a few days. His mother was a widow who went out washing, and the household was a poor one, but not a dirty one—the latter fact telling me that I might use the Brand method. Perhaps the circumstance that the mother was poor and went out washing would have been in the eyes of many a sufficient obstacle to the use of the method, washerwomen perhaps being considered too poor and not intelligent enough to carry out the treatment. But I inform the woman that if I am to treat the boy she must use the baths—which she is willing to do—I suppose she had heard of them and she had lost a brother formerly and did not want to take a chance on the life of her boy—she made no objections. Although the diagnosis was not yet certain, I told the woman to send for my four and one-half foot tub and a thermometer; I show her where to place the tub, in a room, adjoining the bedroom; I tell her to fill it one-third full of water from the hydrant, and to have the boiler full of boiling water by 8 o'clock. At 8 I go to the house, I instruct the woman in the use of the clinical thermometer, show her how to shake the mercury down, have her introduce the thermometer and read it, etc.; we then prepare a bath of 88°, and while I support the head of the boy and use a pail of cold water, the mother rubs the body and limbs; after ten minutes we take him from the bath, dry him, and he walks back to his bed. I now inform the mother that in three hours she is to measure the temperature of the patient again and if it is 102 the boy is to have his second

bath, this to be 84°. As she is alone I tell her to procure a board, to place it slantingly under the head and shoulder, so that she will be able to give the bath without any aid; she is to use a pail of water for the head. Three hours after the second bath she is to give one of 80°, and three hours later one of 76°—providing the fever should rise to 102, and with the bath of 76° she should continue to give every three hours if necessary. She is to write down the time of the baths and the temperature of the patient. This will be enough for her to have learned for the evening. Next day I call again and I now inform her that she must take the temperature of the patient one-half hour after the bath. The boy will perhaps have been chilled by the last bath or two, and I inform her that this is just the thing we are after, that she must not be alarmed but that she may wrap the feet in a hot blanket and place a jug of water or some hot bricks against the feet when the patient comes from the bath. I tell her that the best time for feeding is one-half hour after the bath. I instruct her in making the compresses to front part of body—which exceptionally this boy liked. I do not insist on heavy feeding at any time, particularly not the first days. I tell her now to give the boy some hot drinks—punch if he likes it—when he comes out of his bath. And now to lower the baths to 72°, finally to 68° and to continue with 68°, of course only if the temperature reaches 102 in the rectum. Well, this was about all the work I had with the boy. The method was carried out perfectly and the washerwoman's boy was treated as well as anybody. I would here say that I am using less alcohol, as I have more experience. To women and children, if they do not like punch, I give none, and I would warn everybody not to mar the good effects of the baths by too much whiskey. How can a stomach carry on any digestive work into which one and one-half pints of whiskey are poured in twenty-four hours? Of course men who are accustomed to it should have their allowance.

My little patient had between fifty and sixty baths and my work after the first two days was short, consisting in reading the record, examining the patient and encouraging the mother. She seeing the splendid condition in which the boy continued, carried the method out thoroughly.

I think she spent not more than fifty cents for medicine. You see, in less than four hours from my seeing the patient he had his first bath, and in twenty-four hours the method was carried out according to Brand. It is so very important to begin at once. One can, if in doubt, use lukewarm baths; while these are being used the attendants are instructing themselves in the use of the method.

Quite differently did I act in the case the record of which I send around. I saw she was desperately ill, and I knew the husband was not much of a nurse, and she having a baby five days old made it necessary to have one present to inspire confidence, beside lending material aid. Under these circumstances I drove out and brought back with me one of my nurses at once, and I think that without such a good nurse I could not have managed that case. But we succeeded, and a glorious justification the method received in spite of the dismal prophecies of the whole neighborhood.

Then I had a case of a widow with a string of children from two years upward. Here there was no money for a nurse and a married sister was very timid. So I sent one of my nurses to the house, and after six baths had been given the necessary fortitude and skill for patient and sister was obtained and everything went ahead smoothly and much to the satisfaction of all concerned.

Here is another case where a nurse came handy and was necessary on account of the pertinacity of the fever entailing a good deal of work, because we wanted the baths colder, and because a good nurse will keep up the courage of the household.

Here is the record of a case where we had extensive bronchitis, lymph and diarrhœa, and delirium in a young baby; the baths acted like a charm here, one bad symptom after another disappearing.

TYPHOID FEVER—A SYNOPSIS.

Read in the Section of Practice of Medicine, at the Forty-fourth Annual Meeting of the American Medical Association.

BY M. J. CROUCH, M.D.

UNION, KY.

I retain the old name in preference to the newer ones, as "enteric fever." This new name refers to a single lesion, which lesion, however constant, is not the cause, exclusive seat, or descriptive of the condition; but is plainly the result of a general process.

Nor is all the fever produced in or confined to the intestinal tract. Typhoid fever is a specified condition of the economy, with local modifications.

We shall consider the condition known as typhoid fever first, then the lesions which are results of the process producing that condition. The laws of "disease" in general are to be reached inductively, by generalizations of physiological facts supported by clinical phenomena and morbid anatomy.

These laws applied to the special conditions under consideration, are illustrated and supported by the phenomena and changes observed.

The fever is the *result*, and not the *cause* of the abnormal condition. Heat is normal to the organism, and is produced in the culmination of nutritive metabolism. By cellular activity these changes are accelerated and the normal condition has become abnormal. In keeping with these principles we have developed slowly a continued febrile condition, finally the well known typhoid condition and complete asthenia.

Lesions Associated with the Condition.—We would expect to find lesions in those organs and tissues most directly connected with the process, and located where the process was most active. So we find the lymphoid tissue most prominently involved, as the glands of the intestines, mesenteries and spleen. The spleen, as type, from all attainable evidence seems to be intimately associated with the nutrition of the body and the blood-making process. That it is subject to morbid changes in so many diseases, especially in all continued febrile processes, would warrant the deduction that these *abnormal* processes were intimately associated with the normal nutritive process; the difference due to the form and course.

Physiological facts, supported by pathological data, warrant the following law: That disease is a process, differing from the normal processes only in "form and course." Clinical phenomena and morbid anatomy prove that in the condition typhoid fever, as well as in other diseases, nutritive changes

take place. These changes only differ in form and degree from the normal changes necessary to the well being of the economy.

So this disease is not an entity, but a condition of the economy; a condition which involves a process at one time normal, but by reason of continued disturbance, no longer so.

Treatment must be a rational treatment.

The tendency in all "disease" is to return to health—the abnormal to become normal. We should aid this tendency. The means used may be called alteratives. I use the following: R. Hyg. cum. cretæ; acid salicylic; acid boracic. Also frequent and large draughts of water, rectal injections and warm baths. I give the baths every four hours during the fever. If necessary a cold douche after the warm bath, poured on head from a bucket. The length of warm general bath is varied from twenty minutes to one hour. Temperature 100° F.; of cold douche about 60° F. While the number of cases treated after this manner is not over twenty, the result has been remarkable; duration of fever lessened, intensity mitigated, mortality *nil*. Stimulants used if necessary, whisky, strychnia, also oil turpentine.

DISCUSSION ON TYPHOID FEVER.

DR. JOSEPH EICHBERG, Cincinnati, O.—In discussing the value of the Brand treatment of typhoid fever it seems to me the first and only question it is fair to consider is what this treatment has accomplished that we can not obtain in another way. This question has in part been answered in Dr. Thompson's paper. It seems to me the only thing the Brand treatment offers, is immunity from severe nervous disturbances; patients who have been subjected to rigid hydrotherapy will not have delirium and pass into a comatose condition. But I do not think we are prepared to endorse the statement which has been made, that now we have the Brand treatment we ought not to try to do anything more but should adhere to it for all time. The gentleman has pointed out that the Brand treatment may be given under circumstances apparently of the most unfavorable kind, and he has pointed out that it is a very inexpensive treatment. But it is not inexpensive, for the giving of seventy to ninety baths during the treatment, means that when convalescence is established you will have an exhausted mother or sister as well as an exhausted patient. The Brand method does not shorten the duration of the disease—its warmest advocates admit that; it does not tend to diminish the tendency to relapse. It must be remembered that the Brand treatment is thirty-five years old, whereas the treatment by the newer antipyretics dates back only five or six years. Patients enjoy one advantage under the Brand treatment that other patients do not, that is constant supervision. The patient makes no movement of hand or foot that is not observed by an anxious nurse or relative previously warned of the dangers of any indiscretion. The same intelligent care, with modern antipyretics will secure equally good results—I am prepared to defend that statement with figures—with much less discomfort to the patient and less demand upon the nursing of the family. The lowered temperature which follows the baths is of uniformly short duration as compared to the effect obtained from moderate doses of antipyretics combined with friction of the skin with cold water while the patient is lying in bed. In the wards of the hospital in Cincinnati we have frequently tested this by limiting the Brand treatment to one side and on the other using the cold sponge and antipyretics every time the temperature reached 101.2°. With the baths alone the temperature has remained at 104.2° and 105°, in spite of the baths, and has gone up at times in the bath. While the temperature was still high, for the sake of observation these patients have been given a single dose of antifebrin and the temperature has gone down 4.2° to 5° and has remained down from twelve to eighteen hours, a result not possible with the use of the baths alone. I would not in any way discountenance the use of cold water in this disease, but I believe we can obtain its results without having two or three people to watch the patient, and using the thermometer every two or three hours, and without involving the patient in the discomfort of being plunged from his bed into cold water, with great pain at times. In children the results of cold sponging, with antifebrin in minute doses, are more striking than in adults. What is accomplished by the cold baths, the cold sponge can secure for us. The cold baths produce their effect not only by the reduction of temperature because that is not a constant attendant, but by stimulation of the peripheral vessels, securing a tendency of the blood towards the organs for the time being by the capillary action of the skin. Friction of the surface with cold water, will produce this result with less trouble. Dr. Sihler alluded to a case where the patient on the fifth day of puerperal fever was attacked with typhoid. I am not prepared to believe this was typhoid. A simple case of sepsis would probably run the same course as a typhoid attack.

As to the cheapness of the treatment, the cost of antifebrin is about 28 cents an ounce. With a temperature of 102.2° a single dose of antifebrin will lower it in four to six hours. I do not know of any case treated in the wards of the Cincinnati hospital in five years, in which we have used a half ounce of antifebrin in the entire course of the disease.

DR. WILLIAM E. QUINE, Chicago—The more the temperature which is natural for typhoid fever is tampered with, whether by the Brand method of treatment, by sponging, or by the internal administration of the coal tar series of products, the greater is the liability of prolonging the course of the disease and the greater is the liability to relapse. In general terms it may be stated that relapse occurs in about six per cent. of all cases. In Prof. Thompson's paper something like ninety-five cases are reported where the Brand method was employed and relapse occurred in about ten per cent. of all the cases; sustaining the general proposition that the more the temperature of typhoid fever is interfered with, the greater is the liability to relapse and the greater is the duration of the primary attack in case no relapse occurs. There can be no question as to the utility and life-saving effects of the Brand method of treatment; there can be no question as to the utility and life saving effects of the judicious administration of the coal tar series. But I submit that the Brand method of treatment if used injudiciously, can be as destructive as can any medicine administered with a free hand, that is capable of producing ill effects. I have seen a patient die in the tub, I have seen patients seized with rigors while in the tub and develop a catarrhal pneumonia within a few hours afterwards. The liability of the development of complications in the administration of the Brand method of treatment is not to be altogether ignored or overlooked. The ferocity with which this method is employed by its enthusiastic advocates seems to me almost appalling; there is no contra indication in the minds of these gentlemen, to the administration of the cold bath, provided the patient is known or even believed to have typhoid fever. Pregnancy is no contra indication to the administration of the bath, and if abortion or miscarriage should occur it is no contra indication to the continuation of the bath; if hemorrhage should occur it is no contra indication to the continuation of the bath; just keep on ad-

ministering the baths, and bid the patient God speed. It seems to me that this indiscriminate, wholesale, thoughtless administration of a single method of treatment is not to be commended; the time has not yet come when we can write a receipt for curing typhoid fever as a housewife writes a receipt for mince pie. One gentleman has spoken warmly of the utility of the antipyretic medicines of the coal tar series; I have used them as extensively during the past five years as perhaps most practitioners have done, and I have reached certain general conclusions in regard to the persistent administration of medicines of this kind; they increase liability to relapse, they increase liability to intestinal hemorrhage. I have had ten fatal cases of hemorrhage in one winter from typhoid fever, three fatal cases within a range of half a block and a period of six days, cases in which phenacetin had been administered as judiciously as I knew how from the beginning to the end of the history of these cases. It does not require many years of this kind of experience to compel one to regard the medicines of the coal tar series with a good deal of misgiving. Still I am prepared to reiterate that there are not a few cases of typhoid fever in which sponging alone will not be adequate to the control of bodily temperature, in which the cold pack will not control the temperature and in which the element of exalted temperature seems to be the dominant one. In these cases judiciously administered stimulants and phenacetin or antifebrin, will serve an exceedingly useful purpose. One gentleman has asked whether recovery will ever follow the administrations of these medicines; I have seen recovery follow dozens if not hundreds of times.

Dr. Fuller, Mass.—I am very much interested in typhoid fever for, as a general practitioner, I have attended it thirty years, four years in the army where I treated it by the French method of expectancy with a mortality of about 20 per cent. On going into private practice I chanced upon Letters to Young Physicians, by Dr. James Jackson of Boston, in which he gave his method of treating typhoid fever in the Massachusetts General Hospital. This method, which I adopted, was to give the patient in the beginning three grains of tartaric antimony. I washed the stomach, afterwards with salt water and then with clear water, and the result is to reduce the temperature from 103.2 to about 100, and the pulse will stay below 100° for a week or ten days; if it recurs I give salt and mustard and wash the stomach out again and then give tincture of iodine. Brand's method gives 7.5 per cent. of deaths, Dr. James Jackson reported 5 per cent. and in my practice I have not seen 5 per cent. of deaths in twenty-five years. I believe the clearing out of the stomach in the beginning, is very desirable in a great many ways; you have no fever to deal with and they do not become delirious. I have always used tincture of iron when I could in these cases; those cases in which the stomach is intolerable to tincture of iron are the ones I lose, when I do lose a case. We can go back to the old fathers in medicine and learn something; it is not as disagreeable to the patient to take one emetic, as to be put in a bath tub ten or twelve times a day for fifteen days.

Dr. X. C. Scott, Cleveland, O.—There are some questions connected with this subject which it seems to me need to be explained by its advocates: what becomes of the local congestion when you get a person in a cold bath of 60 or 75 degrees, when the blood is driven from the surface to the visceral organs? it seems to me that would insure hemorrhage, would insure congestion. The Brand treatment when carried out by its strongest advocates admits of medication aside from the bath; what becomes of the poison, what becomes of those retrograde metamorphoses that take place in all conditions where we have high temperatures? Are they eliminated through the Brand system; do you get rid of them through that system? I have heard it claimed in the discussion of this subject that the underlying effects of disinfectants in the stomach and abdominal canal was a total failure; that they didn't do a speck of good under any circumstances when administered for that purpose. How does the Brand system get rid of these changes in the alimentary canal? It seems to me the propaganda upon these major questions rests with the advocates of the system and it is not asking too much of them to prove it. Dr. Brand in his book has not answered these questions. I recall some fifteen or twenty years ago this subject was agitated and a committee was appointed by the various medical organizations which was to go into the hospitals and make experiments with this plan of treatment. They reported as a result of these experiments that they more frequently had hemorrhages and congestion of the lungs with this treatment than by other modes of management. That report made a strong impression on my mind and I have never forgotten it. Not long ago in a discussion of the subject I brought up the suggestion and a gentleman present said that this committee took the very worst cases they could find in the hospitals of Paris to make this experiment; but I think that is a mistake because they took the consecutive cases as they came into the hospitals and made a fair investigation of the subject. Thirty years ago the cold treatment of fevers was rampant over the whole country by means of the cold pack, cold effusion, cold applications of all sorts. What became of them? They were given a thorough trial and were utterly condemned and they went out of use entirely. I could detail cases in which serious accidents happened to patients under this sort of treatment and it seems to me that with the experience the profession has had we ought to go a little slow in adopting a system as laborious as this and as uncertain of good effects, for it does not shorten the duration of the disease and that is one evidence that they do not get rid of the ptomaine poison which causes it.

Dr. J. M. Anders, Philadelphia—I regret very much the absence of Dr. Wilson of Philadelphia, who has had a large experience in the treatment of typhoid fever by this method; had I known he would not be here I might have brought a few definite statistics bearing on the subject. I have assisted to some extent in carrying forward the work in Philadelphia, and am a thorough advocate of the method. Time forbids entering into all the points raised by the papers that have been read; it will suffice, therefore, to call attention to the facts that seem to me to be of leading importance. One gentleman thought the chilly sensations produced by the bath were beneficial. It seems to me that is rather unsound doctrine. Chilly sensations after a bath are usually very easily recovered from without bad effects, but chilly sensations produced during the first ten minutes of the bath, and after friction of the surface, should be a signal for the removal of the patient from the bath tub, at all events during the first bath in the case. Another point is that patients who are very weak, when placed in the cold bath should be held in one position by the attendants and as much of the surface of the body rubbed as possible; turning these patients about can do nothing else than harm. Dr. Eichberg advocates small doses of antifebrin as an antipyretic in the treatment of this disease, though only under certain conditions. We must bear in mind that this is an acute infectious disease, attended by high temperature that results in more or less degenerative change in the cardiac muscles, and it seems to me that any remedy that reduces temperature at the expense of cardiac power is not good. I have long since ceased to give antipyretics. Dr. Eichberg also said that the good effect of the cold bath was due in the

first place to its causing the blood to flow to the internal organs, then to the surface, resulting in cooling the body by elimination of heat. Surely nothing could be farther from the truth than this. According to my own experience and the impressions gained from rather wide reading on the subject, the chief effect of the cold bath is its stimulating effect upon the nerve centers. Take its effect upon the centers of respiration; it stimulates at once a deeper inspiration, and in that way overcomes the tendency to pulmonary complications; the effect upon the stomach is brought about in the same way. Take its effect on the nervous system—a patient who is in a profound coma, or perhaps delirious, under the cold bath will show signs of returning consciousness, or will fall asleep.

DR. LOVELAND.—While typhoid fever may be properly treated by the Brand cold water method, or by antifebrin and antipyrin, it has always seemed to me that those who claim so much for these remedies in the treatment of typhoid fever overlook the fact of the etiology of the disease,—that typhoid is produced by a germ, or rather by a ptomaine resulting from the typhoid bacillus in the bowel; the poison being absorbed by the alimentary canal is taken up by the system, poisoning the nerve centers. So there should be an effort made to subdue the poison in the alimentary canal. I have tried the cold water treatment; I have used antifebrin to a considerable extent, but my typhoid fever treatment consists in disinfecting the alimentary canal. A disinfectant that will destroy the ptomaines in the alimentary canal it seems to me will have a much better effect than to rely upon such remedies as will reduce the fever without going to the cause of the disease. Several years ago Dr. Wilson of Philadelphia, gave us a treatment for disinfecting the alimentary canal, composed of carbolic acid and iodine; that was used for some time with good effect, but it was not ideal treatment. We need something which when taken into the alimentary canal will pass into the bowels without being absorbed from the stomach; iodine and carbolic acid to a large extent is absorbed from the stomach and it takes too long a time to get the patient from under the influence of it and to disinfect the bowel. Naphthalin, properly given, when it passes into the bowel will disinfect it to such an extent that those hard discharges the patient has in typhoid fever that are offensive, will be made non-offensive; the odor is entirely removed in a short time. When the alimentary canal is disinfected thoroughly you will have no use for antifebrin. I have treated these cases year after year and I know from experience that when you get the patient thoroughly under the influence of naphthalin, or any of that class of remedies, the temperature will remain so low that antipyretics are unnecessary.

DR. C. G. STOCKTON, Buffalo, N. Y.—I feel very greatly indebted to Dr. Sihler for showing to me what determination of purpose can carry out, in what has seemed to most of us a very difficult matter, and I admire the way in which he has succeeded in carrying into the homes of the poor a means of relief which cannot be too highly spoken of. I have seen enough of typhoid fever in the homes of the poor under ordinary forms of treatment to make me think that if this can be carried out with anything like success in the matter of detail, which has been done in Dr. Sihler's cases, the utmost good would come. That we have a fatality of the disease among the poor we all know. When we compare the statistics in private cases in the homes of the wealthy and the poor, we find a great difference. It makes a great deal of difference whether the patient is seen at first or at the end of a week. In hospital cases I have seen such great benefit from the Brand treatment that I think it is, so far as we now know, the best one to adopt. If I had typhoid fever I want the Brand treatment given me, because I shall be certain that when over it I will be in far better condition physically than after any other treatment. I have never seen patients come out with as strong hearts, as well preserved nervous systems, and in every way in as good condition as my ward patients during the last three years under this treatment.

DR. C. SIHLER, Cleveland, O.—I feel that the Brand treatment has not any too many friends here. I am a poor fellow to make friends; I don't think I ever convinced anybody of anything in my life. I find the logic of men differs and the logic of doctors differs, and of course we can not convince each other. As far as the men are concerned who have had no experience with the treatment, I do not listen to them. We have sulphur for the itch, mercury for syphilis and cinchona preparations for malaria—those are a few things with which we know we can do good, and in typhoid fever I think the Brand method has placed in our hands something that is equal. So far as pneumonia is concerned, if that is caused by the Brand treatment, we who use that method should see a good deal of it, but we don't. I would ask Prof. Quine whether the typhoid we have now is particularly liable to hemorrhage? It seems to me we lose more patients from hemorrhage than from fever. As to my case, of course I would be a brilliant diagnostician if I could diagnose every case of typhoid on the fifth day; the facts are the woman had typhoid fever before she was taken sick; the profuse local discharge, the rose spots, the course of the disease and the combined general symptoms proved to me that in that case I was right. As far as sponging is concerned, I know nothing about that. I thought it was a good thing in the Brand method that my patients know how to give the bath after I explain it to them. I would just as soon take a bath as to be rolled over and sponged. Just as the surgeon does not say that he can take care of a wound when he gets the case, one or two weeks after it has been made, so we do not claim success unless we can get our patients early, but our private patients ought to have the benefit of this treatment.

VISCERAL PHLEBOTOMY.

BY DR. GEORGE HARLEY, M.D., F.R.S.
LONDON.
Corresponding Member of the Royal Academy of Sciences of Bavaria; of the Royal Academy of Medicine of Madrid: Vice-President of the Royal Medical and Chirurgical Society, London, etc.

Pari passu with the recent advances made in scientific physiology and pathology have most marked changes and improvements taken place in the medical and surgical treatment of disease. Some of them have appeared startling by reason of their novelty, others have intimidated on account of their seeming temerity. Many have been stigmatized as chimerical. While not a few have been actually condemned as being beyond the pale of rational therapeutics. Nevertheless on better acquaintance most of them have been found to be as replete with wisdom as they have proved to be pregnant with advantage to the healing art. Visceral phlebotomy, of which I am about to speak, may not untruthfully be said to belong to the latter class. For when it was first introduced by me to the notice of the profession in 1886[1] in the form of hepatic phlebotomy it was not only abused as a most dangerous, but stigmatized as a most unjustifiable operative procedure. Nevertheless, although only six years have glided away since its death knell was so vociferously sounded, instead

[1] Hepatic Phlebotomy, Brit. Med. Jour., Nov. 13, 1886—Ib. Jan. 15, 1887.

of having been consigned to an oblivious tomb, it is not only still alive and flourishing, but has had added to it a twin sister in the shape of pulmonary phlebotomy, by Dr. Christian Simpson, and now I am about to advocate the extension of this mode of curative procedure to every other come-at-able visceral organ of the body.

Thinking no simpler or more effective place of proving either the safety of, or the benefits to be derived from any novel system of treatment can be adduced than by quoting successful illustrative cases, I will not waste time in exposition; but at once briefly narrate two most successful examples which can neither be gainsaid nor doubted; and in order to save space, and yet put it in the power of those specially interested in the subject to obtain possession of the details in each case, I will cite cases that have elsewhere been published *in extenso*. The one by myself,[2] the other by my son, Dr. Vaughan Harley:

Case 1.—The patient, a lady of intemperate habits, aged 38, was not operated upon until she was supposed to be in a dying state, from the combined effects of a greatly enlarged hard and inflamed liver complicated with ascites and marked anasarca. After Dr. Dunbar Walker (whose patient she was) had rendered her insensible with the A. C. E. mixture,[3] I pierced the upper part of the liver from right to left with an eight inch long trocar of the diameter of between a No. 2 and 3 sized English catheter. The normal liver being at least two inches broad in an average sized woman, and this liver being greatly enlarged—several inches both laterally and perpendicularly—I felt perfectly safe in thrusting the eight inch trocar up to its very hilt. This was done with the hope that during its penetration it might wound one or more blood vessels of sufficient caliber to yield a free stream of blood. On withdrawing the end of the canula about an inch or two, blood issued freely, and twenty ounces were abstracted. The skin around was then closed with a piece of sticking plaster, and a bandage applied. Such was the benefit derived from the operation, that from the very next day the downward progress of the case was arrested. The liver decreased in size, and with the aid of tapping, the ascites and anasarca disappeared, and within three months the patient was so well and strong that she could walk a distance of three miles, and she never had a return of the disease.

Case 2.—Is one of an entirely different character, cited with the view of showing, equally forcibly, the value of hepatic phlebotomy in a case of enlarged and inflamed liver—the seat of strumerous abscesses.

The patient was a country lad, aged 17, whom I was called to see by Drs. Cooper, They and Surgeon Heaven. The liver dullness extended from the right nipple level down to two inches below the umbilicus, and four to the left of the mucial line. Phlebotomy was performed while the patient was under the influence of the A. C. E. mixture. But although the liver was punctured in several places, such was the hardness and compactness of its tissues (on account of the inflammation) that only a very little blood was obtained. Fortunately, however, profuse hemorrhage took place some hours afterwards[4] from the wounded liver through the bile ducts into the intestines, with the result that within thirty-six hours the liver had diminished in size. no less than an inch and a half all round, which made an enormous diminution, and within six days the first abscess had pointed and been emptied. In three days more a second abscess was equally emptied and on the thirty-eighth day the patient returned to his home in Lincolnshire, a distance of 120 miles, without a single bad symptom. The results of these two cases, must I think, convince even the most skeptical, not only of the safety of this operative mode of procedure, but of its utility as a curative agent; for without it, I have not the slightest hesitation in saying that both of these patients who were subjected to it would have been in their graves within a few days.

I now come to pulmonary phlebotomy first proposed and practiced by Dr. Christian Simpson.[5] This, I consider to be the most difficult form of visceral phlebotomy. From the fact that from lungs being contained within the ribs, and constantly contracting and expanding it is impossible by the application of an external bandage to bring the thoracic parietes into firm contact with the orifice of the wound made in pulmonary tissues, so as to effectually close it. Consequently the closure of the wound in the lung after the operation must be effected by the resistence of the pulmonary tissues being sufficient to retain a blood clot in the channel made by the trocar. In order to favor this, Dr. Simpson adopted the plan of "after the withdrawal of twelve ounces of blood the canula was held *in situ* with the finger over the end, to allow a clot forming, and then it was slowly withdrawn." . . . "The patient was immediately and markedly relieved, both as regards the cerebral (she had been comatose G. H), and pulmonary conditions. No effusion took place; there was only trifling hemoptyosis, and a suspicion of a small patch of pleurisy, without a rise of temperature." Dr. Simpson employed aspirating needles in his operations and although they did not prove like mine successful this can scarcely be said to have been due to any fault in the operation, but to the diseases complicating the pulmonary congestion for which the phlebotomy was had recourse to. Two of them being cases complicated with advanced organic heart disease, and the others, two cases of equally incurable Bright's disease.

Having thus shown that the apparently heroic method of extracting blood directly from an inflamed internal organ can not alone be practiced with safety on a favorably placed gland like the liver, but on one of the most unfavorably placed organs of the body for the successful performance of the operation, namely the ever moving lungs, I think I need scarcely dread censure if I boldly recommend the performance of visceral phlebotomy on every suitably situated internal organ, (when it is in a seriously congested condition) in preference to the application of leeches or cupping glasses to the external parietes over it, seeing that the cutaneous blood vessels have in no case whatever any direct communication with the internal organs lying beneath them. Consequently the theory of doing good is but a delusion, and the practice of leeching and cupping but a snare, if done with the intention of directly diminishing the amount of blood circulating through or stagnating in a visceral organ. As the withdrawal of blood from the cutaneous capillaries can only act beneficially in such cases, in so far as it diminishes the entire amount of blood in the body, and seeing that the largest of the internal organs

[2] Brit. Med. Jour., Nov. 13, 1886.

[3] This is a safer form of anæsthetic than chloroform, consisting of 1 part of absolute alcohol, 2 parts of chloroform, and 3 parts of sulphuric ether proposed by me, and recommended by the committee "On the Uses and Effects of Chloroform," appointed by the Royal Medical Chirurgical Society of London, (of which I was a member). See the Transactions of 1864, p. 341.

[4] This case is reported in full by my son Dr. Vaughan Harley in his paper "On Abscess of the Liver," Brit. Med. Jour. Nov. 23, 1889.

[5] "A New Method of Bleeding in some Forms of Pulmonary Congestion with Four Cases" Lancet (London) Nov. 1, 1890.

forms but a small proportion of the whole frame, its thus diminished blood supply cannot be but an insignificant one. Whereas by my proposed method, as shown in the case of the liver where twenty ounces of blood were directly withdrawn, and Dr. Simpson's of the lung, where twelve ounces of blood equally directly extracted from the organ, as much or as little blood can be removed from the congested parts as the operator thinks needful.

Within the last few days, I proposed extracting blood from a tender, greatly enlarged and inflamed spleen; but was thwarted by the nervous apprehensions of an imperfectly educated coadjutor, from his not knowing, that even needles as large as No. 3 sized catheters can be not only thrust into, but kept for twenty minutes in the ventricles of the hearts of living dogs, with perfect impunity. 'Tis knowledge which inspires surgical confidence and without it no one ought to attempt visceral phlebotomy.

For those who are about to have recourse to it as a curative measure for the first time, the following hints, perhaps, may be of service:

1. If it be deemed advisable to render the patient insensible, induce anæsthesia of the skin at the point selected for puncture, by the local application of the hydrochlorate of cocaine.

2. Select the seat of puncture, and give such a direction to the trocar as will ensure the point of its entrance with the organ, being brought into direct contact into the parietes by the application of pressure to them by a bandage after the completion of the operation, in order that the mouth of the wound in the organ may be thereby readily and effectually closed.

3. Let the trocar or aspirating needles be of the size of a No. 2 or 3 sized English catheter, and sufficiently long to penetrate deeply into the organ operated on, without there existing any risk of entirely transfixing it.

4. Let the direction of the instrument be such as to avoid its puncturing any large blood vessel.

5. When all these points have been attended to it will save the patient pain if the instrument be rapidly and at once thrust into the organ to the full depth it is intended to puncture.

6. If no blood flows, then slowly, and by distinct degrees, withdraw the canula, in the hope that a sufficiency of blood will ooze from the transfixed capillaries into the canal made in the organ by the instrument as will yield a free stream and enough for the required purpose.

7. When the wished for amount of blood has been obtained, before withdrawing the canula altogether from the organ, but just before it leaves it, in order to obtain a blood clot to stop up the wound with, place the finger on the mouth of the canula and keep it there till a clot has had time to form both in its interior and in the canal made in the organ itself by the instrument.

8. The next point is to get the clot in the canula to break off from that in the canal so as to leave the latter behind, in order that by its presence there it may prevent any oozing of blood from the organ, after the withdrawal of the instrument. This is best done, I think, by giving a slight twist to the canula at the moment it is felt to leave the organ. And the resistence of the tissues of the organ will cause them to contract sufficiently firm round the clot within it to prevent its being drawn out along with the canula.

9. All that now remains to be done is to place an inch square sized piece of adhesive plaster over the seat of the external puncture, and bind a pad over it with a long flannel bandage, sufficiently firm to insure the internal surface of the parietes being brought into close contact with the orifice of the wound in the organ; the more effectually to prevent the possibility of accidental internal hemorrhage taking place. All I have to add is that if I am not very much mistaken the day is not far distant when the old fashioned, erroneous, as well as unsatisfactory mode of withdrawing blood cutaneously, will be totally abolished in all cases of inflammation and congestion of internal organs, having no circulatory connection with the skin, and that the practice of visceral phlebotomy will become the recognized orthodox method of depletion in such cases.

NECROLOGY.

Dr. Louis A. Destrampes.—President Oliphant of the Louisiana State Board of Health, received July 14, 1893, a cablegram from Bocas del Toro, United States of Colombia, announcing the death of Dr. Louis A. Destrampes, quarantine physician at that port. Dr. Destrampes was a well known citizen of New Orleans, a native of Havana, Cuba, where he was born in 1831. He had been a resident of New Orleans for thirty years.

Dr. David Harlan died July 12, at the age of 84 years, at his home at Churchville, Harford county, Md. Dr. Harlan was born near Stafford, in Harford county. He leaves four sons: Dr. Herbert Harlan, Judge Henry D. Harlan of Baltimore, W. B. Harlan and David E. Harlan. He was a member of the board of visitors to the Naval Academy at Annapolis, and a medical director in the United States Navy and was one of the best known and most highly respected citizens of Harford county.

Dr. Harlan began the study of medicine in 1829 under Dr. John Archer of Rock Run. He afterward attended the University of Maryland. He graduated in 1832 and located in Chestertown, Kent county, and practiced there for three years.

He applied for admission to the United States Navy and was examined in 1835 and commissioned as assistant surgeon. In the spring of 1835 he sailed from New York on the Peacock to Rio Janeiro, around the Cape of Good Hope to Zanzibar, to Muscat, Bombay, Ceylon, Bangkok, Siam and Canton, China. While in Siam the Asiatic cholera broke out aboard the Peacock. Dr. Harlan had charge of the vessel and lost but one of the crew. Upon his return to the United States two years later he was presented with a sword by the members of the crew. In 1872 he was stationed at the naval hospital on the government farm at Annapolis. He was promoted to the rank of medical director in 1871 and upon reaching the age of sixty-two he retired. He built Trinity Protestant Episcopal church at Churchville and was often a prominent member of diocesan conventions.—*Maryland Medical Journal.*

To Drain the Red River Valley.—Gov. Nelson of Minnesota, July 15 appointed an auditing committee under whose auspices the work of draining the Red river valley will be conducted in accordance with a law passed by the legislature. The committee consists of Gov. Nelson, Secretary of of State Brown, Ezra F. Valentine of Breckinridge, and Nelson D. Miller, chief engineer of the Great Northern railway. The work will proceed without delay. The drainage is rather for agricultural than sanitary purposes.

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SATURDAY, JULY 22, 1893.

THE PUBLIC PRESS AND THE PHYSICIANS.

"If you would wish another to keep your secret, first keep it yourself."—Seneca.

The recent indisposition of the President of the United States has been made the occasion for a renewed attack by some influential members of the daily press upon the Code of Ethics. When these complaints are examined they are reduced to a single charge, namely, that DR. JOSEPH D. BRYANT, Surgeon-General of the National Guard of New York, who is at present the physician of PRESIDENT CLEVELAND, refused to give a detailed statement of the nature of the President's illness to the reporters who flocked to the Gray Gables cottage in great numbers. The voice in refusal was DR. BRYANT'S, but the real culprit, they say, was the poor old Code of Ethics, and so the changes have been rung by one newspaper and another until the code of their imagination has not a morsel left of the original parchment.

But the attack on the Code was based on ignorance of its provisions, and a misunderstanding of the point involved.

The reporters assert that as the public is interested in the physical welfare of their Chief Magistrate, therefore the physician should give them daily or hourly bulletins of the progress of the case. They mistake the situation. The public has a political, not a personal interest in their President. The fact that a citizen of the Republic in whom the people have confidence, is in their service as President, can not operate to take away his personal rights as a citizen. No public man, whatever his rank or station likes to have his ailments set before the world. If he be really sick, the statement pleases only his enemies, and those sighing for his political estate. If he be suffering from a trifling ailment, even a detailed statement of the case is viewed as colored to suit the occasion, and a virtual concealment of some surely fatal affection.

The physician, whatever he may say or not say in attendance upon a public officer of high rank, is almost certain to be misunderstood. The wiser course then is to keep silence, commit to the family of the distinguished patient the duty of giving to the press such information as they may choose to give,

"What to give, and what to keep
Requires an understanding deep."

This action of the physician is based on regard for the feelings, and protection of the rights of the patient, and the Code of Ethics has nothing to do with the physician's refusal to make public the nature of the patient's illness.

DR. BRYANT has done a praiseworthy act in preserving silence in this matter, and his professional brethren will uphold him in his action.

THE PRESENT STATUS OF THE SURGERY OF THE PROSTATE.

Among the many ills which were marked *noli me tangere* until recent years, and which modern surgery has done much to relieve, prostatic hypertrophy occupies a very prominent position. There is no disease perhaps, in which routine let-alone policy has done so much to retard surgical progress as in the one under consideration. Thousands of old men have had their declining years made miserable by prostatic disease for which neither medicine nor surgery offered substantial relief. Indeed, the most miserable period of the old man's life has usually begun with his first experience with his surgeon; *i. e.*, his initiation into catheter life. Thousands of old men are to-day suffering unspeakable tortures because of the so-called conservatism and total reliance upon the catheter practiced by their physicians.

With an increasing confidence in modern surgical methods, pioneers in the surgery of the prostate have sprung up within something over a decade, and much has been accomplished. In 1884 two papers appeared which were destined to become memorable landmarks in prostatic surgery. The HARRISON operation of perineal puncture, and MCGILL'S operation of supra-pubic prostatectomy marked the beginning of a new era in genito-urinary surgery. GUYON, MOULLIN, WYETH and many others have been enthusiastic workers in this field, but we are mainly indebted to REGINALD HARRISON and the late MR. MCGILL, of Leeds, for the principal advances in the surgery of the prostate that have been recently made. Scarcely less important, however, has been the popularization of supra-pubic cystotomy by our distinguished countryman, HUNTER MCGUIRE. The resources at present at our command may be briefly stated as follows:

1. Supra-pubic cystotomy followed by the establishment of a supra-pubic fistula and simple drainage.

2. Supra-pubic cystotomy and removal of projecting growths, division of a bar at the vesical neck, or incision of the floor of the prostate and lowering of the level of the prostato vesical outlet.

Supra-pubic cystotomy may be combined with simple dilatation of the prostatic ring.

3. Perineal drainage by HARRISON'S method of tunneling the prostate.

4. Perineal prostatectomy or dilatation as circumstances may require.

5. Combined supra-pubic cystotomy and perineal drainage.

6. DITTEL'S operation of enucleation of the lateral lobes of the prostate by external incision.

7. Supra-pubic section with symphyseotomy.

The greatest drawbacks to any method of operation on the prostate are: 1, the danger of lighting up acute hyperæmia or even inflammation in already damaged kidneys; 2, the ever present danger of sepsis.

Unfortunately we have no very accurate data for determining the precise degree of so-called surgical nephritis present. We are, however, justified in inferring considerable renal impairment in long standing cases of prostatic hypertrophy.

The danger of both uræmia and sepsis is in direct proportion to the length of time that the patient defers operation.

With earlier operations and the method by two stages, surgical intervention should be much more encouraging in its results.

There is one point in relation to supra-pubic cystotomy with simple drainage, which should be better understood, viz.: this operation is something more than a *dernier ressort* for palliative purposes; it is often directly curative. It will be found that the rest secured to the prostate and bladder promotes absorption of the adventitious growth which constitutes a large part of the obstructing tissues at the vesical neck. The enlargement of the prostate proper is, in a large proportion of cases, a minor factor in the pathological *ensemble* known as prostatic hypertrophy. Glandular and interstitial hyperplasia in the tissues about the prostate and vesical neck, constitute the bulk of the mass felt through the rectum. This hyperplasia is largely due to the disturbance of micturition which exists. With the relief of this disturbance, resolution occurs, and if the prostate be examined by the rectum some weeks after a supra-pubic cystotomy for prostatic obstruction, considerable reduction in size will be observed. Prostatic obstruction is not due primarily to disturbance of micturition, but once the latter occurs, it becomes responsible for certain plus conditions which can only be removed by putting the bladder at rest. By considering these points, we are able to understand how a simple supra-pubic section may restore the normal function of micturition *per vias naturales*.

In many cases, a combined supra-pubic and perineal section constitutes the ideal operation. Through and through drainage has manifest advantages in certain cases, and the operation is not greatly complicated by a *boutonniere;* then, too, any circumscribed obstruction may be removed by the route which seems most favorable. With thorough dilatation of the prostatic ring, followed by prolonged perineal drainage by a large tube, it is rarely necessary to do a cutting operation on the prostate itself. It is to be remembered that we are working in a septic field, and not a scratch should be made unless necessary for the removal of circumscribed obstructions. Symphyseotomy would seem to offer a very valuable aid in some cases of prostatectomy, especially when the peritoneal fold extends low down, or the bladder is greatly contracted.

With a combination of symphyseotomy and the TRENDELENBURG position and cross section, the prostate may be attacked with great facility, even under seemingly unfavorable circumstances.

It is to be hoped that ere long the general practitioner will be more appreciative of the advantages of surgical interference in prostatic disease. There is no reason why such cases should be allowed to suffer indescribable torture, to die finally sacrifices to a conservatism that conserves nothing but a routine let-alone policy which has no place in surgery.

In closing, it might be well to invite attention to the practical fact, that prostatic hypertrophy—so-called—begins at a much earlier period than is usually supposed. The disease is usually dated from the time of the appearance of disturbed micturition, and it is well to remember that the disease is far advanced before the vesical function becomes disturbed. Careful treatment at an early period will often prevent serious trouble in after life. Perineal drainage early in the case is comparatively safe and may bring about complete cure. The free exhibition of ergot in combination with the iodide and bromide of potassium for a prolonged period may, if begun early, act so effectively as to enable us to avoid operative interference.

A CONVENTION OF AGED PEOPLE.

Some members of the staff of *La Science Médicale*, of Paris, have arranged for a convention of very old men at Paris, their object being to make a biological record and comparison. No person under ninety years of age will be eligible as delegate, and every one who offers himself for membership must show positive proof of the time and place of birth. The management of the congress promise to defray all the traveling and hotel charges of their nonagenarian guests, and good medical care will be devoted to them in order that they may undergo no improper strain or exposure. Prizes in the form of gold medals and money purses have been arranged for, and will be presented by the presiding officer, DR. DE

Boissy, at the end of the convention. The president is himself a hearty centenarian who has practiced medicine at Havre for seventy years. No restrictions as to nationality are to be placed upon the delegates, but it is not expected that any very old contestants will appear from beyond the confines of France. At the time of the last French census, there were about two hundred men and women whose ages were reported at or beyond the centenary point. There is, however, little probability that many centenarians can be present, since the by far greater number of them have their homes at points remote from the place of meeting. A very considerable proportion of the alleged centenarians who were found at the time of the last census, were residents of the departments that border along the Pyrenees.

ARMY HOSPITAL CORPS DRILL.

There will be issued from the office of the Surgeon-General of the Army, in the course of a few weeks, a small volume of about 100 16mo. pages, which will require a good deal of concentration of mind to enable medical readers generally to understand it,—we refer to the Hospital Corps Drill Regulations," the manuscript of which is now in the Government printing office. The elaboration of this system of drill has been a work of time; and there are few medical officers of the Army, who have not contributed ideas towards its progress. Previous to the organization of the Hospital Corps in 1887, the men detailed from the line of the Army for hospital duty were drilled and disciplined as soldiers with their companies; but since that organization was effected the officers of the medical department have become responsible for the drill and discipline of their men. Many of the younger officers and not a few of their seniors took kindly to the work implied in this and entered with enthusiasm into its prosecution. The men had to be taught, and the officers had not only to learn to teach but to decide upon what was needful and proper to be taught. As the men constituted a military body they had to be moved, when necessary, after the manner usual with such bodies; and when thus drilled they had to be taught the management of the litter and of the wounded man. A Provisional Manual, complied by Major Charles L. Heizmann was issued, not so much as a guide to be followed, but as a suggestion; and medical officers were requested to vary and improve its methods in practice. As a result many criticisms on every paragraph of the Manual were forwarded to the Surgeon-General, and six or eight complete systems were formulated by as many Army medical officers and submitted for approval and adoption. The Provisional Manual was found to be particularly defective in its primary drill; and a board of officers consisting of Majors Smart, Havard and Captain Brechemin, was convened at Fort Leavenworth, Kansas, to consider the various propositions and decide upon the best methods. A cardinal principle of this board was to limit the authorized movements to those absolutely needful and to exclude everything that savored of dress parade. Military movements were to be restricted to the maneuvering of the men as a company or detachment; and when drilling with dummies as wounded men each litter squad of the detachment was required to be drilled or instructed individually so as to prevent any attempt by over zealous tacticians at commanding the simultaneous movement of wounded men by a number of squads. This board labored under the difficult task of providing a litter drill that would be applicable to any litter, as the style to be adopted in this important part of the equipment of a bearer company was then an unsettled point. The board printed the results of its labors and sent copies to every military post for trial, suggestions and criticism, and after a delay of some months on this account, the "Manual of Drill for the Hospital Corps" was published in 1891. This, however, was but one of the steps in the progress of evolution. A litter was adopted ultimately with a sling attached to each of its poles, and as the Manual of Drill gave no instructions for the management of a fixed sling, Majors Hoff and Havard were directed to consider the subject and revise the volume, embodying in their revision all the improvements which their experience as commanders of the companies of instruction at Forts Riley and Russell led them to suggest. This revision after criticism by those officers who had shown special interest in the elaboration of the drill, is the work shortly to be issued. Few medical volumes of its size have had so many minds concerned in its production. Few have had the value of their every word weighed so carefully before acceptance. In fact this little book, when it makes its appearance, may be regarded as one of the curiosities of medical literature. Many surgeons of the National Guard are as much interested in it as our friends of the Army because the subjects of organization, drill and instruction in first aid are prominently before them, as may be seen by the report of the proceedings of the meeting of the Association at St. Louis, Missouri, in April, 1892.

THE MAYOR OF CHICAGO AND HIS ISLAND.

At this time when six thousand men are engaged in the work of digging a drainage canal for the turning of the Chicago river away from the lake, his honor, the Mayor has made public his desire to build an island at a considerable distance from shore—say eight or ten miles if need be—and there obtaining the purer water, which is to be brought to the

city through extensions of the existing tunnels. His honor fails to specify how long it would remain uncontaminated if Chicago continues to grow, and her population to increase. A few years ago, the proposition to build a four mile tunnel was viewed as visionary, and a useless expenditure of money. Now that there is little doubt that the water may occasionally be contaminated at that intake, the proposal to place it six miles further into the lake does not seem preposterous; but it does not touch the real evil. The danger to the water supply is from that open sewer which the Chicagoese call the Chicago river. That stream keeps on pouring into the lake a black, stinking mass of non-disinfected sewage. The evil can not be remedied by lengthening tunnels or building pleasure islands for the Mayor. The sewage should flow away from the drinking water, and be diluted with lake water as it flows. The great drainage canal will doubtless accomplish the work in time. It is learned that four years more will be required for its completion. In the meantime the enlargement of the pumping facilities, long ago advocated by Illinois' most distinguished sanitarian, JOHN H. RAUCH, is the need of the hour.

AN APOLOGY.

Referring to our issue of June 24, 1893, and particularly to the editorial article attacking DR. R. HARVEY REED of Mansfield, O., for having, as is alleged, sent out a circular letter assailing THE JOURNAL and its former editor, we have to say that we regret the publication of the editorial, as we are satisfied that DR. REED only sent the letter to the members of the Business Committee and certain members of the Board of Trustees, and was not actuated by any motive hostile to the ASSOCIATION JOURNAL or its best interests.

SOCIETY PROCEEDINGS.

The Mitchell District Medical Society

held its twenty-third annual meeting at West Baden Springs, July 12, 13, 14, under the presidency of Dr. Dudley S. Reynolds. Some of the proceedings are of permanent value.

A comprehensive essay on the "Importance of Early Operation in Tuberculous Disease of the Bones and Joints," by DR. B. MERRILL RICKETTS of Cincinnati, awakened an interesting discussion, which was followed by a clinical examination of a case presented by Dr. A. J. Banker of Columbus, Ind., with supposed tuberculosis of the knee joint, involving the lower end of the femur. The child was anæsthetized with chloroform, and brought before the Society for examination. The discussion of the case was opened by Dr. A. M. Owen of Evansville, Ind., who had been designated to assist Dr. Banker in conducting the examination. Dr. Owen concluded inasmuch as the epipheses had already been separated, no operation could so well readjust the parts, as to avoid a degree of shortening which would render the limb perfectly useless, wherefore he considered amputation the best proceeding, in hope of securing a good stump for the adjustment of an artificial limb.

DR. JOSEPH L. BAUER of St. Louis, considered the question of tuberculosis by no means settled in this case, and inclined to the belief that the disease resulted from mechanical injury. He thought the parts should be laid open, and all necrosed portions of the bone chiseled away, and, if found desirable, the medullary canal might be curetted; all these proceedings being conducted aseptically as far as possible, he would hope to preserve a useful limb; this failing, we might still fall back upon Dr. Owen's plan of amputation.

He regards tuberculosis of the long bones and joints a comparatively rare affection, believing that a very large percentage of them arise from mechanical injuries.

DR. OWEN did not wish to be understood as admitting the tuberculous nature of the affection without further analysis, but as the subject under discussion was tuberculous disease of bones and joints, he felt that if this were really a tuberculous affection, amputation in this particular case offers the very best hope of restoring the health of this particular child.

DR. E. P. EASLEY of New Albany, Ind., read an interesting report of "Intestinal Disease," in which a mistaken diagnosis had been concurred in by a council of able surgeons. The paper will be published.

A brief but classical essay on "Surgery of the Tendons," by DR. JOHN B. HAMILTON of Chicago, was referred to a special committee, consisting of Dr. A. M. Owen of Evansville, with instructions to direct the publication and furnish copies to all the members.

"Indications for Operation in Laceration of the Cervix," by DR. T. S. GALBRAITH of Seymour, Ind., proved very entertaining, and awakened considerable discussion by Dr. Rufus B. Hall of Cincinnati, who did not think anything like so much importance should be given to this slight injury, for it often proved to be of little consequence, and he thought rarely demanded operative interference, he would say never, excepting where other complications exist.

DR. L. H. DUNNING of Indianapolis, and Dr. A. M. Owen of Evansville, thought the fashion of operating in such cases had brought a legitimate procedure into some unmerited disfavor. The experience of others was such as to lead them to the belief the profession at present exercised a closer discrimination of suitable cases for operation, hence operations rendered necessary by complicating pyosalpinx or ovarian disease, leave out of account the more easily discovered lacerations to which formerly had been attributed all the symptoms of the real disease within the pelvis, which, menacing life itself, finally demanded attention.

DR. SEXTON felt sure the cases of lacerated cervix in which operative interference seemed necessary were perhaps more common in some sections than in others. He was not prepared to take either extreme as a rule in practice; he felt that each case was a law unto itself.

DR. RUFUS B. HALL of Cincinnati, read an entertaining account of ten cases of "Ectopic Gestation." As it was directed that the paper should be published, your reporter feels that it would be an injustice to speak of any point in the discussion, except the remarkable fact that Dr. Hall had seen his first case in 1891, and a half dozen of the series occurred within a radius of 600 feet from the central one of the group.

DR. DUNNING of Indianapolis, whose experience is very large had never encountered a case, and had therefore, no experience to offer. Dr. Owen of Evansville, practiced nearly twenty-five years without seeing a single case, and then had three within a few weeks of each other. Others

expressed similar views; and it became clearly proven, as Dr. Larrabee of Louisville, pointed out, that the distance to which one's experience must go, to lead him to a case of ectopic gestation, and the rapidly succeeding cases following the first one, make it very clear that, although the spermatic cell in this case has an abnormal distance to travel, it multiplies with great rapidity when it reaches its destination.

Dr. Sexton of Rushville, Ind., presented an essay on the "Clinical Features and Therapeutical Indications of Pelvic Inflammation, including Peritonitis," which was pronounced by Hall, Dunning, Owen, and others the most graphic picture ever read in their hearing. The classical style of the author, with his vivid portrayal of his subject must be read to be appreciated properly; it will soon appear in print.

Dr. M. F. Coomes of Louisville, reported two cases of acute "Catarrhal Laryngitis in Children;" in both cases membranous croup was suspected, and the doctor was summoned to perform intubation, which, upon examination he thought should be delayed, and in a few hours, exudation coming on, relief to the embarrassed respiration followed, without the necessity of instrumental interference. He pointed out some of the dangers from the use of cocaine thrown into the air passages, and reported an almost fatal case of cocaine poisoning from a simple instillation into the eyes of a few drops of a 4 per cent. solution.

Dr. S. G. Dabney of Louisville, reported two cases of "Retinitis Albuminurica," in which disease of the kidneys had not been suspected until after examination with the ophthalmoscope.

Dr. Larrabee of Louisville, thought the question of blood pressure had received too little consideration in such cases, and felt the failure to recognize the real disease until such advanced stage of atheroma as that described by Dr. Dabney should not have been permitted to occur and shows the general evidences of this state have been recklessly overlooked to wait until organic disease of the retina, either in the form of fatty degeneration or hemorrhage, before recognizing the dangerous arterial condition which must precede that state. It is about as reckless as the failure to discover the presence of rickets until the deformity of the bones has already appeared. To be brief, he wished to say the disease of the eye in the so-called albuminuric retinitis was just one of the results of the general disease, and should not be counted a part of the disease itself. The fact that similar appearances occur in the kidneys, either before or after the local lesion in the eye, should simply be recognized like the eye affection, as the result of the general disease. And so with the altered osseous structure following rickets; the bone affection being the result of rickets, and not a necessary part of the disease.

Dr. A. J. Banker in the course of his report on surgery, mentioned the case of a child born with atresia ani in which he was able, by an operation, to make an artificial anus which performed all the functions of the natural organ.

Dr. A. M. Owen of Evansville, in presenting the subject of skin grafting, warmly endorsed the Thiersch method. He recited numerous experiences in his own practice which showed the importance of a very large, thin graft, and of the absolute necessity of constantly keeping the graft moistened in a solution of chloride of sodium, for the first four or five days. He considered the largest graft which may be cut so as not to include any sub-cutaneous tissue, the most desirable.

Dr. E. G. Sterne of Indianapolis, read an essay on "Structural Changes in Syphilitic Neuritis," which he illustrated with a very handsome series of microscopic sections; altogether making a very valuable demonstration.

The "Treatment of Fibroid Tumors of the Uterus" was so ably presented by Dr. L. H. Dunning of Indianapolis your reporter fears any attempt at reference to details, inasmuch as the paper will be published.

An essay on "Balneotherapy" by Dr. C. G. Comegys of Cincinnati, was directed to be published.

"Heroes of Peace," by Dr. Joseph Gardner of Bedford, Ind., formed one of the very entertaining popular essays, which was enjoyed by the public, as well as the profession, on Thursday evening. It is needless to say he selected a Doctor of Medicine as the typical hero of peace.

Dr. Jos. L. Bauer of St. Louis, read a practical essay embracing a series of interrogatories concerning the "Nature of the Proper Treatment of Fractures of the Shaft of the Femur." The technical character of the subject, and its general importance, forbids your reporter's attempt to deal with the minute points in the essay; or the various aspects of the subject illustrated in the discussion, which was conducted, in the main, by Drs. A. M. Owen, A. J. Banker, and S. H. Charlton.

On Thursday evening, Dr. Dudley S. Reynolds of Louisville, President of the Society, delivered the annual address in which he pointed out the importance of medical societies, and the permanent value of many of their deliberations.

He emphasized the fact that the profession of medicine is in the strictest sense, a learned profession, and in no possible relation a matter of business, or a means of earning a livelihood merely.

He described, in good English, the necessary features of a good education; which, according to his description, must begin in childhood and continue through life. He then explained the various stages of progression in the course of training for the boy who contemplates the study of medicine; and made it clear that those who indulge a love of study, and possess a tender sympathy for suffering humanity which dominates all other impulses and desires, are the only persons qualified to become members of this noblest of all professions or avocations in life.

He considered the medical society merely a post graduate school of instruction; and alluded in glowing terms to the classical essay of Dr. Sexton, as a brilliant illustration of the fact that intellectual greatness dwells in the man, regardless of the locality of his residence. He showed how Dr. Sexton, living in a remote rural district, had measured lances most successfully with the great metropolitan surgeons, whose experience in a single day eclipsed his own for a whole year's time. Sexton, nevertheless, has the genius of professional aptitude, and made his observations with an unerring certainty of detail that, every point noted in a single case became a pivotal point in the law governing that period of the morbid process.

The medical society brings together geniuses, and great doctors, and small doctors, and doctors of the intermediate class. The great men learn a little more greatness, the small men learn a little more, and the intermediate men are elevated to a plane above mediocrity, as the necessary result of the interchange of opinion based upon observed facts. Humanity receives benefit from the improved methods of practice more widely disseminated through the discussions of medical questions; and so medical societies must be encouraged by all thoughtful people in every civilized nation as among the most valuable congresses of men.

Miss Clara Barton, President of the Red Cross Association, on invitation described briefly the nature of that beneficent International Association of Philanthropists, which has already challenged the admiration of the intellectual world.

OFFICERS—Dr. A. J. Banker of Columbus, Ind., was elected president; Dr. John A. Larrabee of Louisville, first vice-president; Dr. Rufus B. Hall of Cincinnati, second vice-president; Dr. G. W. Burton of Mitchell, Ind., secretary and treasurer; and Dr. Thomas Galbraith, chairman of the committee of arrangements for the mid-winter meeting at Seymour, Ind.

The Society adjourned on Friday at noon.

ASSOCIATION NEWS.

Another Report from the Pacific Coast.—The meeting at Milwaukee will, on the whole, be regarded as a success. The attendance was good, the number registering being 867. It was hoped that the presence of the Fair in Chicago would greatly increase the attendance, while at the same time the ninety odd miles separating the two cities would prevent the Fair proving too powerful a counter-attraction. This was only partly true, for while the proximity of the big show undoubtedly increased the number of visitors, it was very noticeable that there was a thinning out even on the first evening, a more marked diminution on the second, and on the third afternoon nearly half those in attendance had taken their departure.

Almost every State and Territory was represented by delegates, the attendance from California being larger than for many years. The general sessions were well attended, and a very lively interest was shown in all the proceedings. The work done in the Sections as a whole was quite up to the average, and that of some was certainly on a par with any society in this country. Many excellent papers were read, and the discussions were always longer than time would permit. This latter fact was very regrettable, for the discussions were undeniably good, and many of the speakers were prominent either as teachers or authors. The general addresses on surgery and medicine, while excellent papers, seemed hardly to come fairly under the head of what one would expect as a general address on these important subjects. The same criticism can be made on this feature as a whole, and it would seem desirable that a new departure was inaugurated. The feature of the meeting was the address on cholera by Dr. Ernest Hart, the editor of the *British Medical Journal*, who was present as a delegate from the British Association. Mr. Hart is a very pleasing speaker, and at the same time his mastery of the subject, with the earnest manner of its presentation, held the unbroken attention of the largest audience present on any occasion during the meeting.

The news that the American Medical Association will meet in San Francisco next year will be a matter of sincere congratulation to the profession on this coast. It will then be twenty-three years since the Association has honored us with its presence; indeed, during all that long period a meeting has never been held in the great West, which seems a *terra incognita* to the majority of the Association. Various causes are ascribed for the comparatively slow growth of the National Association; but we have never heard mentioned one that has undoubtedly some weight in this retardation of progress. For years the Association has held its meetings in a comparatively circumscribed territory, which has consequently been well gone over. Occasionally this has been varied by excursions into new ground, and, we believe, with invariably good results. The argument is made that when meetings are held in places distant from the center of population the attendance will be small, and the revenue will decrease. As a general proposition this is certainly not true; a new locality means new members who only attend because the Association is in their midst, and of this increment a fair proportion will be permanent. We believe that in the past a mistake has been made in ignoring the claims of distant localities. So far from the Association waiting for an invitation from such places it should, from time to time, move into these regions that the profession may realize it is a living entity. The ignorance displayed, even by prominent members of the profession, regarding the great West and its resources, would be amusing, were it not also deplorable. It was frequently stated that a meeting in San Francisco would be a dismal failure; that no one would attend, and that it would be impossible to fill the Sections. To this we have no hesitation in replying that if the officers be present there will be no difficulty in holding a good meeting, with an attendance almost entirely from the Pacific coast. This, however, will not occur. Conversion is rapid, and already many prominent members of the Association have signified their intention of attending. It is as yet too early to speak definitely, but we have no hesitation in prognosticating that the meeting of 1894 will prove, not only one of the most successful, but also one of the largest that has ever been held.

The preliminary arrangements at Milwaukee seem to have been carried out most carefully, and everything passed off in a very successful manner. Great credit is due to Dr. U. O. B. Wingate, the chairman of the committee, for this gratifying result of considerable hard work. There were no hitches of any kind, and fewer complaints than are usually found at such large gatherings. The citizens of the "Cream City" were unbounded in their hospitality, and everywhere the Association was most heartily welcomed. The selection of officers for the ensuing year seems to have given general satisfaction. Dr. Hibberd of Indiana, the President, as will be seen elsewhere may be regarded as a California "pioneer." His election at this particular occasion is, therefore, particularly appropriate.—*Occidental Medical Times.*

To avoid duplication of payments or complication of accounts, members are respectfully informed that *membership dues* should be sent to the Association Treasurer, Dr. R. J. Dunglison, Lock box 1274, Philadelphia.

Subscription fees from gentlemen not members of the Association, should be sent to this office. Address JOURNAL AMERICAN MEDICAL ASSOCIATION, 68 Wabash Ave, Chicago.

SOCIETY NEWS.

Colorado State Medical Society.—The State Medical Society held its twenty-third annual session in Denver, June 20, 21 and 22. In attendance, and in the interest manifested, it was the best meeting that has been yet held. The profession of Colorado is earnest, progressive and untiring in the advancement of medical science. The scientific element of the meeting was most marked.

The officers for the ensuing year are as follows: President, Edmund J. A. Rogers; first vice-president, A. M. Bucknum; second vice-president, M. Harrison; third vice-president, Kate R. Lobingier; treasurer, W. F. McClelland; corresponding secretary, A. S. Lobingier; recording secretary, E. R. Axtell.

The election of Dr. Rogers was a most proper recognition of his interest in and work for the society in the past, and as well a fitting rebuke to the method resorted to in the effort to accomplish his defeat. The honors of the society properly belong to those who take such interest in its success that they are willing to give time and money to that end, and who sacrifice personal convenience to their interest in the welfare of the organization.

The most important work of the society, from an ethical standpoint, was the adoption, by a unanimous vote, of the following resolution:

Resolved, That the Colorado State Medical Society is opposed to any change in the Code of Ethics of the American Medical Association, deeming any such action at this time to be unwise and uncalled for.

Whether this resolution is in accord with the sentiments that have been imputed to the profession in Colorado in the committee on revision, we neither know nor care. The unanimity of its adoption is an emphatic declaration that in Colorado the vast majority of scientific medical men still regard the practice of medicine as a profession and not a trade, and that they especially oppose those innovators who desire to make the patenting of instruments ethical, and to erase the landmarks that lie between honorable and dishonorable methods in practice.—*Denver Medical Times.*

Mississippi Valley Medical Association.—The nineteenth annual meeting of the Mississippi Valley Medical Association will take place in Indianapolis, Wednesday, Thursday and Friday, October 4, 5 and 6, 1893. A general session will be held each morning, and the afternoons will be devoted to section work. There will be three Sections at this meeting, viz.: one on General Medicine, one on General Surgery, and one on Obstetrics and Gynecology, the last-mentioned having been added since the last meeting. An unusually large attendance is expected, in this the World's Fair year. Reduced railroad rates will be provided, further notice of which will be given. Frederick C. Woodburn, No. 399 College avenue, Indianapolis, is secretary.

Ohio State Medical Society.—At the last meeeting of the Ohio State Medical Society, the following officers were elected: President, Dr. N. P. Dandridge, Cincinnati, O.; first vice-president, Dr. F. C. Larrimore, Mt. Vernon; second vice-president, Dr. W. Caldwell, Fremont; third vice-president, Dr. W. T. Corlett, Cleveland; fourth vice-president, Dr. McCurdy, Dennison; secretary, Dr. Thomas Hubbard, Toledo; assistant secretary, Dr. Graefe, Sandusky; treasurer, Dr. J. A. Duncan, Toledo. Very respectfully,

GEO. E. MALSBARY.

Cincinnati, O., July 13, 1893.

National Association of Dental Examiners.—The twelfth annual meeting of this association will be held at the Columbian Dental Club, Chicago, commencing Friday, August 11, at 10 o'clock A. M. The committee on the dental colleges of the National board will meet at the same place August 10, at 10 A. M. Dr. E. Magill of Erie, Pa., is president, and Dr. Louis Jack of Philadelphia is chairman of committee on colleges.

DOMESTIC CORRESPONDENCE.

World's Fair.

Dr. J. J. KINYOUN, of the Marine Hospital Service, in response to our request, sends us the following statement of the medical exhibit of the Marine Hospital Service at the World's Columbian Exposition:

The U. S. Marine Hospital Service exhibit is divided into three classes, viz.: The Marine Hospital Service proper, the Quarantine Service, and the Laboratory of Hygiene. In the hospital exhibit are displayed the statistics of the service since its reorganization in 1871, the number of patients treated annually, the statistics of the medical examinations of the Immigration Service, and of the Life Saving Service, and of applicants for pilot's license. The blanks and books, hospital furniture, surgical appliances are shown, such as are now furnished to the twenty-six Marine hospitals and nine National quarantine stations.

The workings of the National Quarantine and Public Health Service are represented by models and the various apparatus in full operation.

A model of a maritime quarantine station is shown, which embodies the latest ideas and improvements in the care of persons who have been exposed to, or are suffering from an infectious disease.

A model of a bath house to illustrate the best methods of bathing persons who have been exposed to the infection of cholera.

Working models full size of steam disinfecting apparatus, both stationary and portable, embodying all the latest improvements, and are designed for use at the quarantine station, for hospitals and municipalities.

Apparatus for generating and applying sulphur dioxide gas is illustrated by a full size sulphur furnace, by which an 18.65 per cent. per volume of the gas can be generated from the sulphur.

Another apparatus, portable, designed for applying liquified sulphur-dioxide to cabins, holds of vessels and rooms, in any required strength.

The internal and inter-State quarantine work is illustrated by a model of a probation camp for the treatment of yellow fever or cholera, and by a model of a disinfecting railway car equipped with all the apparatus and appliances required for such work.

The statistical portion of the quarantine service is shown by consular reports of the vital statistics of foreign cities and seaports and domestic reports, and the "Weekly Sanitary Abstract."

The Laboratory of Hygiene consists of a complete bacteriological laboratory fully equipped with all the latest improved apparatus for investigating subjects pertaining to sanitary science.

In this laboratory, investigations are being carried on, and instruction in any of the several branches can be given to those interested in such work. Aside from this, museum specimens of the different bacteria are shown, together with the various materials, appliances and apparatus required, bacteriological investigations and chemical analyses, etc.

SELECTIONS.

Abortive Treatment of Erysipelas of the Face.—A 1 per cent. etherial solution of sublimate should be used, applied with a small hand atomizer, throwing a forcible spray.

The more forcibly the spray is applied so much quicker will be the recovery, depending of course on the thickness of the skin and the severity of the case.

The small blisters or vesications which the sublimate may cause should not be the cause of its withdrawal, for in the smaller erysipelatous eruptions they should be encouraged rather than otherwise, on account of their beneficial effect.

In applying the spray, the central parts of the inflammatory areas should be only lightly sprayed, but much more thoroughly along the line of demarkation, as well as one to two cm. into the healthy skin. The eyelids should be only slightly moistened. Then apply compresses. One or two such applications of the sublimate should be sufficient. Those towards the last must be shorter, and parts which have been gone over once should be only lightly touched a second time. Only the boundaries and suspected places on the skin require the more energetic spraying.

Before commencing the treatment the patient should be informed that after every application of the spray he will feel a rather sharp burning pain, but which will not be any more severe than the discomfort caused by the tension of the skin from the erysipelas; also that his face will swell and small blisters or vesicles will form, which might likewise be caused by an erysipelatous inflammation. The crusts should not be removed, but allowed to drop off spon-

taneously, which process will be hastened by the compresses. By following these foregoing rules, to be sure not all cases can be aborted in a day, but even if a failure, the patient has been benefited, in that the extent, duration and severity of the disease has been materially lessened. The average duration of erysipelas attacks treated by Teichman was from four to five days.—From the *Centralblatt für Chirurgie*, July, 1893.

The Sterilization of Ophthalmic Instruments.—According to the *Medical Press and Circular*, M. Nuel of Liège, France, has reported on the above subject, giving the results of his personal researches. He has found that the use of boiling water has served him as the surest and readiest method in regard to the major part of his instruments. The antiseptic efficacy of thus plunging the articles into boiling water is enhanced if to the water is added some potash or soda, or even common salt. The recommendation of Schimmelbusch is referred to, namely, to use a solution of carbonate of soda in a strength of 1½ to 2 per cent., and this solution is suitable to be used in the cleansing of instruments. The period of immersion may be three or four seconds in the case of cutting instruments, while it should be prolonged to thirty seconds for needles, forceps and the like. The reporter has used a variety of other recommended measures of sterilization, but has given the preference to the boiling water method.

MISCELLANY.

Camp Poplar River.—The abandonment of this military post, which has been in existence for some years at the Fort Peck Indian Agency, was ordered on July 3. The post is situated on a small stream from which its name is derived, about two miles north of the Missouri river, in northwestern Montana. The troops were kept there to look after the Assiniboine and Yankton Sioux. The garrison was always healthy, but presumably none of its members will regret the order carrying them elsewhere, for the surrounding country is bare and uninviting, presenting only a few cottonwood trees in the river bottoms; the buildings unsubstantial and open by many leaks to the intense cold of the Montana winters. In February last the thermometer dropped to —54° F., and the soldiers slept in their buffalo overcoats or passed the night, if particularly cold, in sitting around the barrack room stoves. Dr. J. T. Clarke is the medical officer on duty at the post.

Calling the Doctor in a Military Way.—The *New York Herald* states that when medical attendance is required at Fort Wood, Bedloe's Island, a gun is fired and one of the doctors at Governor's Island goes over. In its issue of the 6th inst. it reports that: Two extra guns boomed out from Fort Wood last evening just as the one from Fort William had told of sunset, and the island's inhabitants shook off the air of confident expectation they had worn for some days and assumed instead a knowing look which spoke volumes. Two children had been born beneath Liberty's torch.

Dr. G. I. Cullen, managing editor of the *Cincinnati Medical Journal*, has been appointed Asst. Surgeon of the First Regiment O. N. G.

Dr. Clark Gapen of Chicago, has been appointed medical superintendent of the Illinois Insane Asylum at Kankakee, vice Dr. S. V. Clevenger, resigned.

The Kansas Way.—The following appears at the foot of a billhead of a Kansas physician. It is unique, original and pointed, and we presume effective: "A prompt settlement of this bill is requested. If bills are paid monthly, a discount of 10 cent. is given. Bills not paid promptly will be passed to my attorney for collection. If you pay your physician promptly he will attend you promptly, night or day, rain or shine, while your slow neighbor suffers and waits, as he made the doctor wait, and while he is waiting the angels gather him in."—*Kansas Medical Journal.*

Max von Pettenkofer's Jubilee.—A jubilee celebration was given Prof. Max von Pettenkofer, July 1, in Munich, on the occasion of the fiftieth anniversary of his graduation in medicine.

Prof. Christian Fenger, formerly professor of surgery at the College of Physicians and Surgeons, has been elected to and has accepted a chair of surgery and clinical surgery at the Northwestern University Medical School. (Chicago Medical College.)

LETTERS RECEIVED.

(**A**) Atkinson, W. B., Philadelphia; Ayer, N. W. & Son, Philadelphia, Pa.; (**B**) Burford, Wm. B., Indianapolis; Battle & Co., St. Louis; Boylan, H. E., Cincinnati; Bovee, J. Wesley, Washington, D. C.; (**C**) Caldwell, W. S., Paris, France; Chicago Branch, Warner, W. R., Chicago, Ill.; (**D**) Duhring, L. A., Philadelphia; Dubreult, M., Bordeaux, France; Didama, H. D., Syracuse, N. Y.; Duncan, C. H., Bridgeport, Ohio; (**E**) Eastland, O., Wichita Falls, Texas; (**F**) Fowler, George R., Brooklyn, N. Y.; (**H**) Harriman, J. W., Iowa City, Iowa; Hamilton, Alice, Northwestern Hospital, Minneapolis; Hotz, F. C., Chicago; (**I**) Imperial Granum Co., New Haven; (**J**) Jones, Stanhope, New Orleans; (**K**) Kimball, H. H., Minneapolis; Kinyoun, J. J., World's Columbian Exposition; Kinney, J. H., Brooklyn, N. Y.; Kellogg, J. H., Battle Creek, Mo.; (**L**) Lamphear, Emory, Kansas City, Mo.; (**M**) Mercer, Alfred, Syracuse, N. Y.; Malsbary, G. E., Cincinnati; Milbourne Advertising Bureau, Philadelphia, Pa.; McKesson and Robbins, New York, N. Y.; McMurtry, L. S., Louisville, Ky.; (**N**) New York Pharmaceutical Association; Niles Advertising Agency, Boston, Mass.; (**P**) Palmer, Edgar, LaCrosse, Wis.; Patterson, R. S., Port Huron, Mich.; Parke, Davis & Co., Detroit; Phillips, Chas., Chemical Co., New York, N. Y.; Pusey, Wm. Allen, Chicago; (**R**) Reynolds, Dudley S., Louisville, Ky.; Reyburn, Robt., Washington, D. C.; Reed, R. Harvey, Mansfield, O.; Rennolds, H. T., Baltimore; (**S**) Stewart, F. E., Watkins, N. Y.; Stearns, Frederick & Co., Detroit, Mich.; Shiddler, G. W., Cincinnati; (**T**) Taylor, J. M., Kirkwood, Ga.; Tuttle, A. H., Cambridgeport, Mass.; Tracy, Edward A., Boston, Mass.; The Trommex Extract of Malt Co., Fremont, Ohio; (**W**) Warner, W. R., Philadelphia, Pa.; Webster, Geo. W., Chicago; (**Z**) Ziegler, J. L. Lancaster, Pa.

THE PUBLIC SERVICE.

Army Changes.—Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from July 8, 1893, to July 14, 1893.

Capt. FREEMAN V. WALKER, Asst. Surgeon, the order assigning him to temporary duty at Ft. Trumbull, Conn., is so amended as to relieve him from further duty at Ft. D. A. Russell, Wyo., and to assign him to station at Ft. Trumbull, Conn., until further orders.

First Lieut. CHARLES F. MASON, Asst. Surgeon, promoted to be Asst. Surgeon, with the rank of Captain, July 2, 1893.

Major JAMES P. KIMBALL, Surgeon, is relieved from duty at Ft. Clark, Tex., to take effect at the expiration of his present sick leave of absence, and ordered to Ft. Marcy, N. M., for duty.

Capt. WILLIAM H. CORBUSIER, Asst. Surgeon, is relieved from duty at Ft. Wayne, Mich., and ordered to Ft. Supply, I. T., for duty, relieving Major PAUL R. BROWN, Surgeon. Major BROWN, on being relieved by Capt. CORBUSIER, is ordered to Ft. Hamilton, N. Y., relieving Major EZRA WOODRUFF, Surgeon. Major WOODRUFF, on being relieved by Major BROWN, is ordered to Ft. Keogh, Mont., for duty, relieving Major WILLIAM H. GARDNER, Surgeon.

Major WILLIAM H. GARDNER, Surgeon, on being relieved by Major WOODRUFF, is ordered to duty as attending surgeon and examiner of recruits at Hdqrs. Dept. of Dakota, St. Paul, Minn., relieving Capt. WALTER REED, Asst. Surgeon U. S. A. Capt. REED, upon being relieved by Major GARDNER, is ordered to report to the Surgeon General, at Washington, D. C., for duty as curator of the Army Medical Museum, and as professor of clinical and sanitary microscopy in the Army Medical School.